



Sciex-NMS^{ch}


Scientific Exchange Programme
between Switzerland and the New Member
States of the European Union

Retrospect on 7 years of successful
scientific cooperation

2009-2016

 sciex.ch

Swiss Contribution

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

— Sciex-NMS^{ch}

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Introduction

Preface

Sciex – the scientific exchange Programme between Switzerland and the New Member States of the European Union (NMS) has come to an end. In order to foster the scientific capacities of young researchers of the NMS and to promote sustainable research partnerships between the NMS and the Swiss institutions of higher education. 10 calls have been conducted and a total of 545 Sciex Fellowships have been granted after a three step rigorous evaluation procedure. With some pride we can look back at the achievements of the Programme.

One can proudly say that the goals of Sciex – career support, scientific innovation and networking between institutions – have been largely reached, thanks to a generous commitment of all partner institutions, their scientific board and individual research groups, with the help of the experts who have evaluated the projects and last but not least through the competent and steady accompaniment of the team of the Rectors' Conference of Swiss Higher Education Institutions (swissuniversities, previously CRUS). Special thanks to the members of the steering committee, who have contributed to a reflected and well-founded distribution of the available funding.

The evaluation has shown that the projects, which have covered nearly all scientific disciplines, have been for all the participants a stepping stone in their career, that good number of scientific projects could be brought to an end and that long lasting partnerships and networking have been initiated.

Sciex has been definitely a major Swiss contribution to a greater and more stable coherence between the European countries and their institutions for higher education, since the Programme aimed at the reduction of economic and social disparities in the enlarged European Union. But on the other hand we have learned to collaborate with the NMS, their researchers and universities, on equal footing and by recognizing the scientific potential of our partners without prejudice. The success of the Programme calls definitely for a continuation. I thank wholeheartedly all those who have contributed to this success.



Prof. em. Guido Vergauwen
President of the Sciex
Steering Committee

On 26 November 2006, the Swiss population voted in favor of the Federal Act on Cooperation with the States of Eastern Europe, the legal basis for the Enlargement Contribution. In doing so, they signaled their approval for financial support aiming at reducing economic and social disparities in the enlarged EU.

The Enlargement Contribution is Switzerland's contribution to a secure, stable, prosperous and democratic European continent. It is an integral part of Swiss foreign policy and an expression of solidarity in Europe. At the same time, Switzerland is consolidating the basis on which to build solid economic and political ties with the EU and its Member States.

With the CHF 1.302 billion approved by the Swiss parliament, Switzerland has been participating in over 200 projects in the 13 partner countries that joined the EU since 2004. They are designed to promote economic growth, improve public safety and security, protect the environment as well as strengthening the civil society.

Out of the total amount more than CHF 100 million has been allocated for cooperation in science and research with the goal to foster scientific capacities of researchers in the New Member States and promoting sustainable research partnerships between them and Switzerland.

We are convinced that vibrant science and research activities are important for the higher education sector. Science and research are also crucial factors for innovation and economic development.

In the science and research portfolio the Sciex Fellowship Programme is by far the biggest and most important activity. We are very happy and proud that over 500 young scientists could successfully advance in their research during their stay in Switzerland. The fact that 27 Swiss universities and research institutes took part in the Sciex Programme and supported one or several Fellowships emphasizes its popularity also among Swiss scientific institutions, which signaled from the very beginning high interest for this program.

In addition, this cooperation offered opportunities to establish and intensify partnerships between research institutions and we have reason to believe that the exchange of knowledge and experiences will continue also beyond the duration of this Programme.



Dr. Ulrich Stürzinger
Vice-President of the Sciex
Steering Committee
Head of NMS Division,
Swiss Agency for
Development and
Cooperation

InfoBox

The Sciex Programme in brief¹:

Purpose

The Sciex Programme is part of Switzerland's enlargement contribution to the New Member States of the European Union (NMS). Its aim is to contribute to reducing economic and social disparities within the enlarged European Union through fostering the scientific capacities of researchers in the NMS and promoting sustainable research partnerships between the ten NMS and Switzerland.

The main aim of the Programme was to establish scientific partnerships that would:

- 1) Develop individual researchers' capacities (human capital);
- 2) Foster scientific progress and innovation (scientific prospects); and
- 3) Establish or enhance networks between researchers (networking).

Instruments

The Sciex Programme provided the following two instruments to achieve these objectives:

- 1) Research Fellowships for Junior Researchers from the ten NMS to pursue their research in cooperation with Swiss researchers in Swiss research institutions; and
- 2) Short-term research Visits for Senior Researchers (STV).

- The **Fellowships** were awarded to promising post-graduate NMS Junior Researchers who were either working on a PhD or pursuing postdoctoral research, in the latter case mostly with the intention of qualifying for a professorship.

The Sciex Fellows were formally employed on a regular Swiss work contract at the Host Institution in accordance with standards set out in the European Charter and Code for Researchers². As a result they enjoyed ideal working and legal conditions that contributed significantly to the success of their research. The Fellowships covered the costs of the Sciex Fellow's salary (average for a twelve-month period was CHF 50'000 in the first year and CHF 55'000 in the second year for Doctoral Candidates and CHF 80'000 for PostDocs), the social security contribu-

tions paid by the Host Institution (percentage set in accordance with the SNSF rules) and additional allowances for Fellows (max. CHF 2'500 CHF) to cover travel costs between their home country and Switzerland, transport costs within Switzerland, the costs of participating in conferences and publishing results. The Swiss Host Institutions were required to cover all costs related to the work of the Fellows and their research costs as the Sciex Programme was primarily conceived as a career-funding instrument.

The Fellowships lasted between a minimum of 6 and a maximum of 24 months for Doctoral Candidates and between a minimum of 6 and a maximum of 18 months for PostDocs.

The scientific supervision, monitoring and support for each Fellow were provided by two Senior Researchers working in the Host and Home Institutions, who acted as Mentors. To this end, funding for Short-term Visits was provided for the Senior Researchers (see below). The design of a Sciex project was also essential for developing cooperation between the research institutions and for the Fellows to maintain links with their Home Institution. Ultimately, the Programme aimed to facilitate the return of the Fellows to their Home Institution after the research stay in Switzerland and to prevent any brain-drain effects.

- For each Fellowship a total of three **Short-term Visits** were reserved for Senior Researchers (Host and Home Mentors).

Each Short-term Visit was funded to the maximum amount of CHF 2'500 to cover travel and accommodation costs. The Short-term Visits were intended for the following purposes:

- 1) Implementing joint research projects with the partner scientists;
- 2) Mentoring visit(s) to support the Junior Researchers with their research projects;
- 3) Strengthening cooperation and the networks among partners;
- 4) If applicable and relevant, setting-up follow-up research projects.

¹ Detailed information are available in the Programme Document on www.sciex.ch

² <http://ec.europa.eu/euraxess/index.cfm/rights/europeanCharter>

Disciplines

The Sciex Programme was open to all academic disciplines and subjects.

New Member States of the EU

Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia.

Budget

A total amount of CHF 46 million was earmarked for the Sciex Programme with the following budget per NMS:

Bulgaria:	CHF	2 million
Czech Republic:	CHF	7 million
Estonia:	CHF	2 million
Hungary:	CHF	5 million
Latvia:	CHF	2 million
Lithuania:	CHF	4 million
Poland:	CHF	12 million
Romania:	CHF	8 million
Slovak Republic:	CHF	3 million
Slovenia:	CHF	1 million

Duration

2009-2016

Responsibility for project implementation**swissuniversities**

The Rectors' Conference of Swiss Higher Education Institutions (swissuniversities, previously CRUS) was responsible for the overall implementation and management of the Sciex Programme.

It has been mandated by the Swiss Agency for Development and Cooperation (SDC).

Steering Committee

The Steering Committee was responsible for the general operational decisions of the Programme and took the final decision regarding the assignment of the Fellowships on the basis of the evaluation procedure results.

The Steering Committee was composed of the Swiss research stakeholders and chaired by one delegate from the Rectors' Conference of Swiss Higher Education Institutions.

Each partner state had the possibility to delegate an observer to the Steering Committee.

Coordination Bodies in the partner countries

A Coordination Body was designated in each partner state and placed in charge of the in-country management of the Programme. Its task included disseminating information about the Programme, providing assistance to researchers located in the sending countries, checking the formal requirements of all proposals and coordinating the national scoring.

Swiss Regional Offices

Ten Sciex Regional Offices (in Basel, Bern, Fribourg, Geneva, Lausanne, Lugano, Lucerne, Neuchatel, St. Gallen, Zurich) were established in Switzerland to disseminate information about the Sciex Programme, provide assistance to researchers in Switzerland and coordinate the national scoring.

Website

www.sciex.ch

www.swiss-contribution.admin.ch

Steering Committee

Prof. Dr. Guido Vergauwen President	Rectors' Conference of Swiss Higher Education Institutions (swissuniversities, previously CRUS) Former Rector of the University of Fribourg
Prof. Dr. Louis Schlapbach Vice-President	ETH Domain
Dr. Ulrich Stürzinger Vice-President ¹	Swiss Agency for Development and Cooperation, SDC
Prof. Dr. Kathrin Altwegg ²	University of Bern
Prof. Dr. Greta Patzke ²	University of Zurich
Dr. Anne Crausaz ³	Rectors' Conference of Swiss Higher Education Institutions (swissuniversities, previously KFH)
Dr. Evelyne Glättli	Swiss National Science Foundation, SNSF
Dr. Pascal Walther	Swiss National Science Foundation, SNSF
Walter Grossenbacher-Mansuy ⁴	State Secretariat for Education, Research and Innovation, SERI
Roger Swifcz ⁵	State Secretariat for Education, Research and Innovation, SERI

¹ until July 2011, Dr. Hubert Eisele (SDC)

² until October 2009, Prof. Dr. Jacques Giovanola (EPFL)

³ until December 2010, Prof. Dr. Daniel Mlynek (HES-SO)

⁴ until January 2014, Dr. Olivier Brighenti (SERI)

⁵ until July 2009, Katharina Eggenberger (SERI); until July 2013, Sonja Merwar (SERI)

Statistical data

545 Sciex projects...

Altogether 10 calls were conducted and a total of 545 projects were selected for Sciex Fellowships with a total amount of CHF 44.3 million³ made available over the entire runtime of the Programme. From the quantitative perspective the goals were largely reached, although initially a total of 470 Sciex Fellowships were expected to be selected. The Sciex Fellowships were very competitive. Of the approximately 1'440 proposals submitted, only the top researchers from the NMS were selected after a three-step evaluation procedure. With a success rate of 38%, the Sciex Programme became, as funding instrument, a niche of excellence.

... selected after a highly competitive procedure

After checking their eligibility the proposals were subjected to an evaluation at two levels: first, an evaluation by the responsible teams in the partner countries (except Estonia, Poland and Romania) and in Switzerland in order to assess the importance and quality of each project from the point of view of the institution. In a second step, the proposals were examined exclusively on the basis of their scientific quality by an Evaluation Committee composed of experts from the relevant disciplines. This procedure ensured that the selected projects combined both the requirement of excellence of research and the specific objectives defined by the complementary criteria, namely the professional commitment of the Fellows and the Mentors, the mutual benefit to be gained from collaboration with the Swiss team, and the degree of support provided by both partner institutions. The final decision was taken by the Steering Committee on the basis of the results of the evaluation and the available resources. At the end, only the most talented and promising Junior Researchers were thus able to conduct a part of their research in a Swiss institution of higher education.

Overview of the Sciex projects

www.sciex.ch heading "Sciex granted projects"

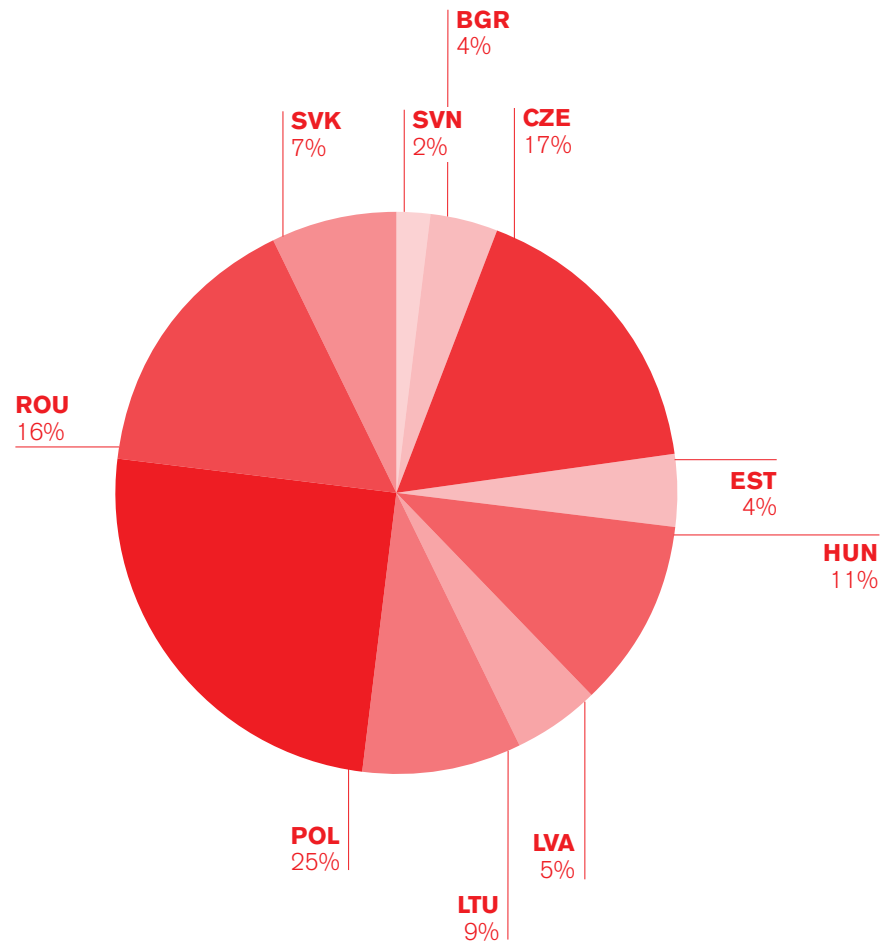
The 545 visiting Junior Researchers on Sciex Fellowships presented a multifarious picture. Diversity was key to the success of Sciex and of its manifold achievements.

³The fact that the granted amount is higher than the available budget is explained by the fact that 2% of the overall amount allocated to the Fellowships and 70% of the overall amount allocated to the Short-term Visits were reimbursed to the Sciex Programme.

7.7% of the overall budget was dedicated to the management costs of the Programme.

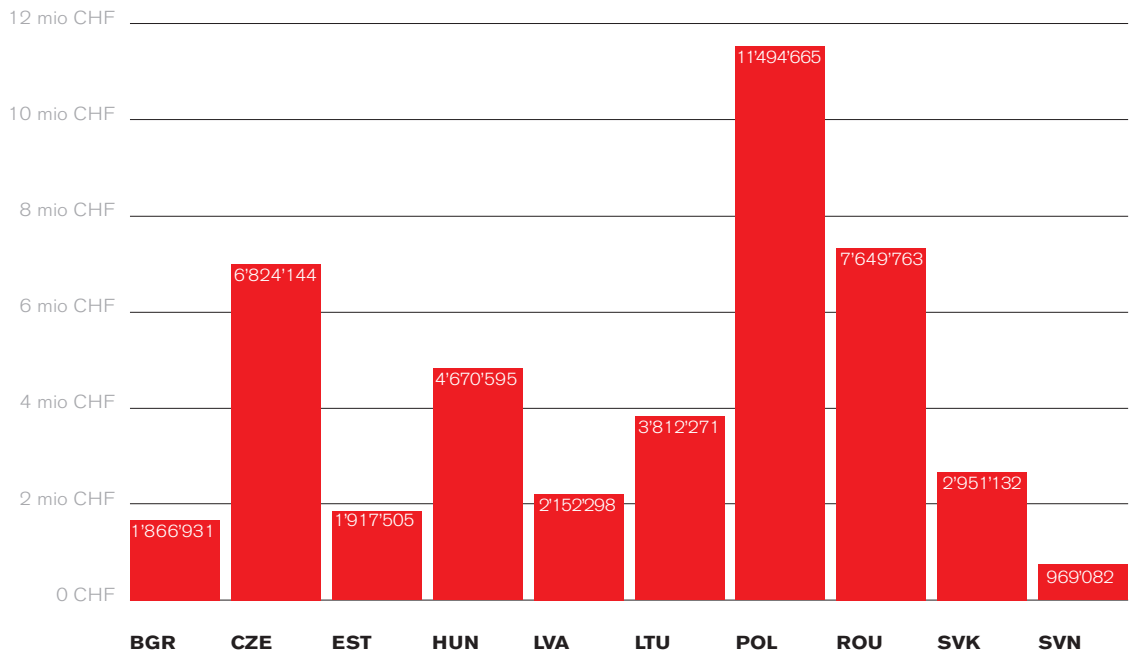
Projects by NMS

Repartition of the projects between the NMS



Granted budget

Repartition of the granted budget between the NMS



**Total
Granted
Budget**
44'308'384

Overview of the 10 Sciex Calls⁴

		BGR	CZE	EST	HUN	LVA	LTU	POL	ROU	SVK	SVN	TOTAL
1st Call	Submitted ⁵	-	34	2	-	-	-	41	-	-	-	77
	Granted ⁶	-	12	1	-	-	-	12	-	-	-	25
2nd Call	Submitted	-	-	6	18	-	16	58	-	-	7	105
	Granted	-	-	3	9	-	6	26	-	-	2	46
3rd Call	Submitted	-	29	8	18	5	-	79	-	18	-	157
	Granted	-	15	4	4	3	-	29	-	9	-	64
4th Call	Submitted	-	-	-	38	-	16	-	-	29	13	96
	Granted	-	-	-	7	-	8	-	-	8	4	27
5th Call	Submitted	14	47	13	-	5	-	81	11	-	-	171
	Granted	4	21	3	-	2	-	21	7	-	-	58
6th Call	Submitted	3	-	-	44	-	13	-	64	31	11	166
	Granted	1	-	-	15	-	5	-	35	9	3	68
7th Call	Submitted	14	38	10	-	10	-	52	46	-	-	170
	Granted	8	13	5	-	6	-	23	23	-	-	78
8th Call	Submitted	-	-	11	33	5	24	-	-	23	-	96
	Granted	-	-	3	13	3	12	-	-	9	-	40
9th Call	Submitted	13	41	10	-	15	13	59	78	-	-	229
	Granted	5	14	3	-	4	7	17	23	-	-	73
10th Call	Submitted	17	58	-	29	22	17	-	-	25	4	172
	Granted	4	13	-	11	9	12	-	-	5	2	56

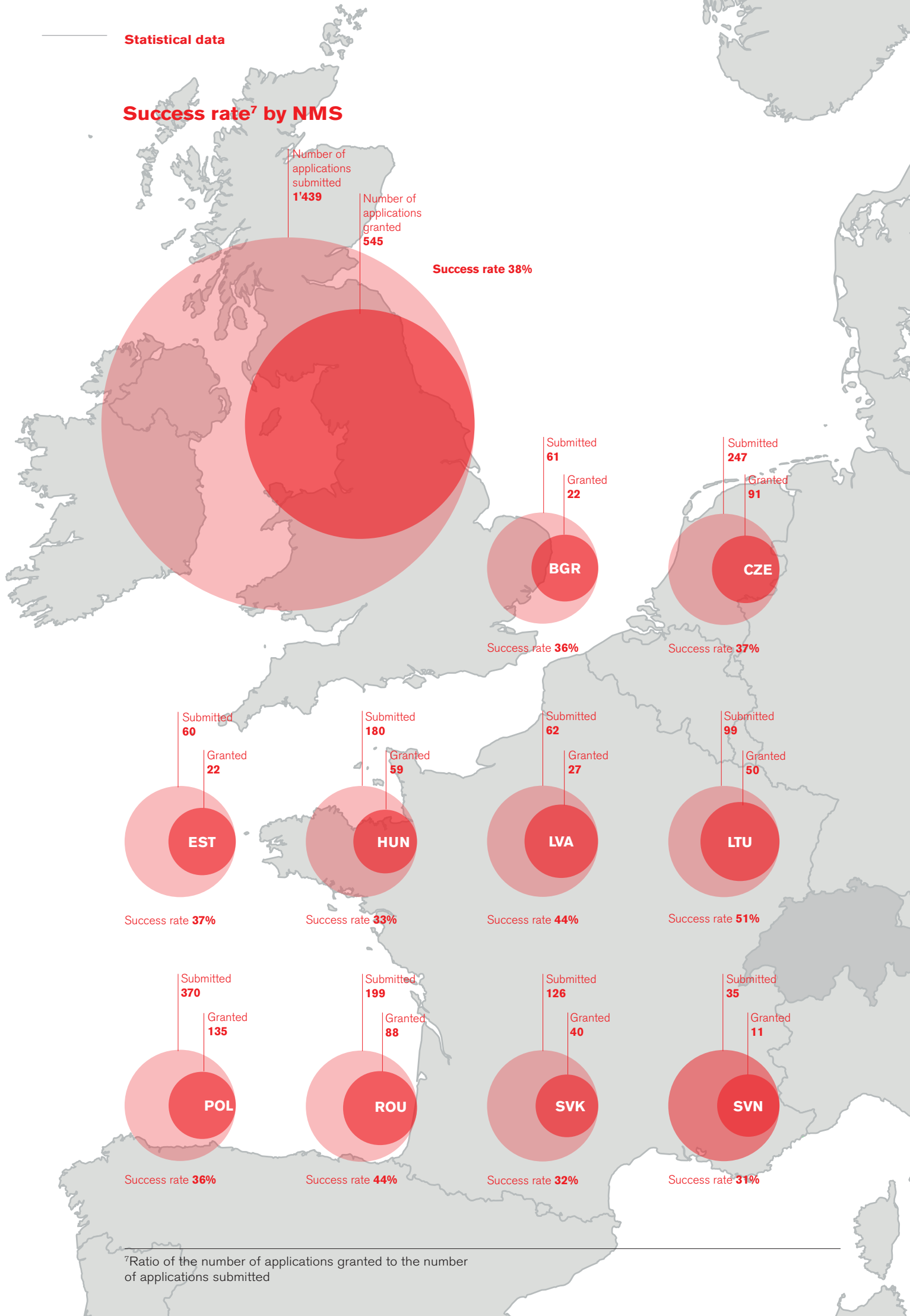
⁴10 projects were additionally funded in the Pilot Phase (3 from the Czech Republic and 7 from Poland)

⁵Number of applications submitted

⁶Number of applications granted

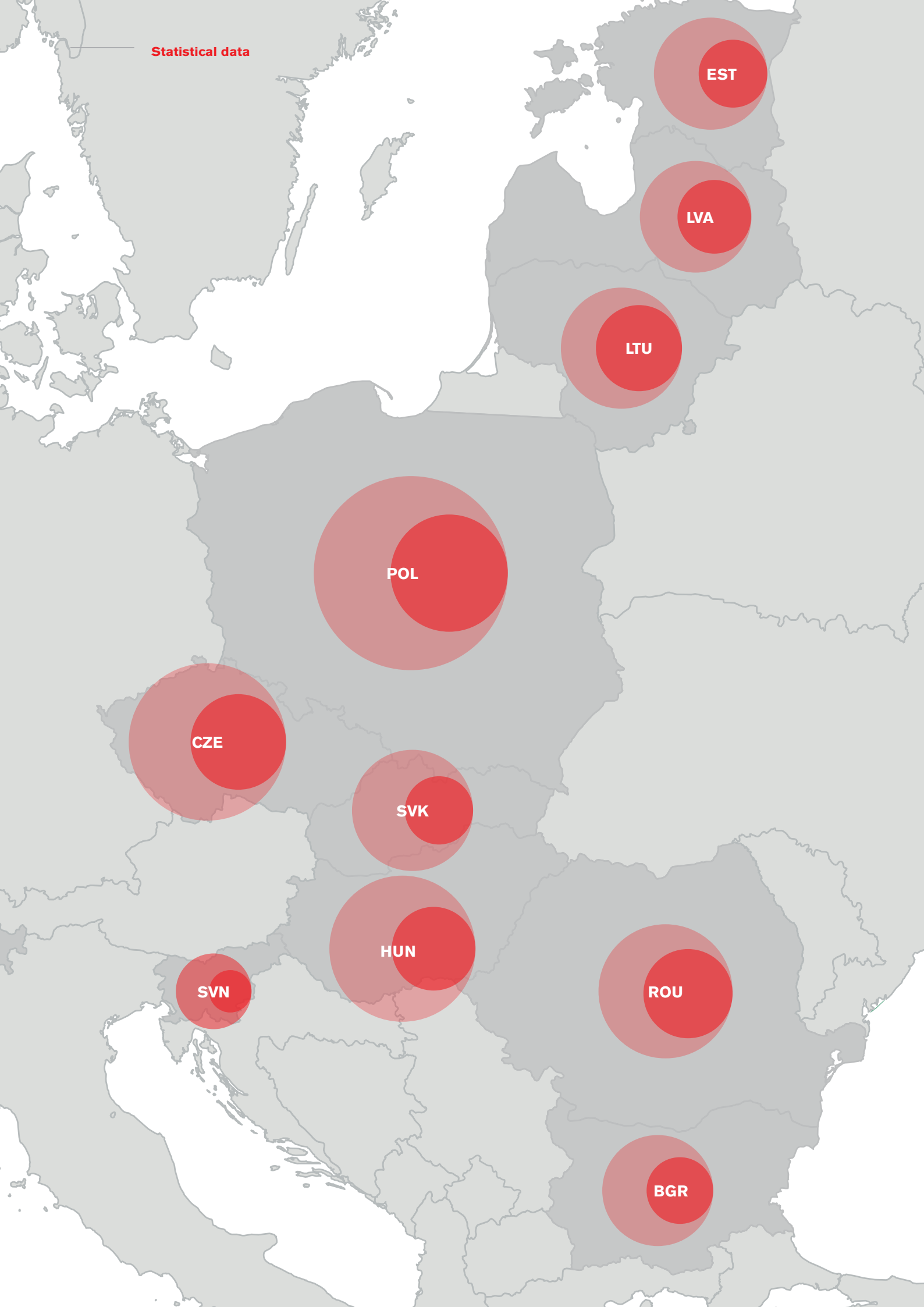
Statistical data

Success rate⁷ by NMS



⁷Ratio of the number of applications granted to the number of applications submitted

Statistical data

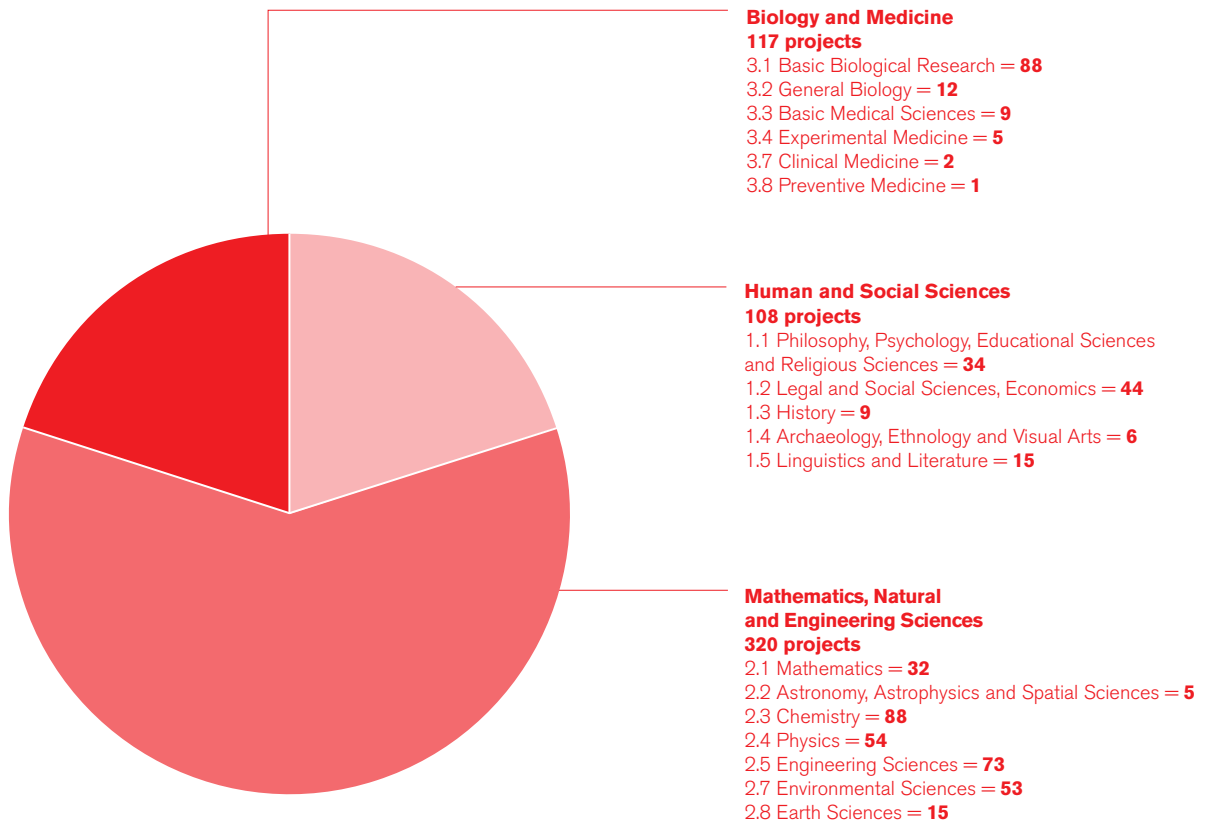


Projects by Host Institution and NMS

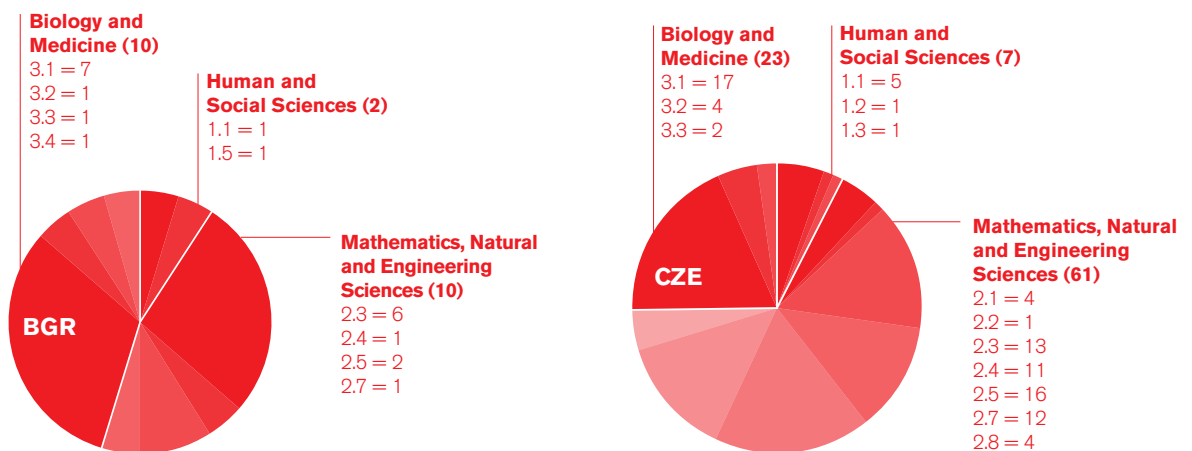
	BGR	CZE	EST	HUN	LTU	LVA	POL	ROU	SVK	SVN	TOTAL
UNIBAS	1	4	2	4	1	1	6	1	2	-	22
UNIBE	3	9	5	5	3	2	9	6	3	-	45
UNIFR	2	8	1	7	4	1	8	9	3	-	43
UNIGE	3	5	3	8	5	2	14	5	1	1	47
UNIL	1	1	1	3	2	-	8	6	-	1	23
UNILU	-	-	-	-	2	2	1	-	-	-	5
UNINE	2	1	-	1	1	1	5	5	1	-	17
UNISG	-	-	-	2	-	-	2	2	-	-	6
USI	-	4	-	-	-	-	2	1	1	-	8
UZH	3	15	2	4	5	2	20	12	5	-	68
FORS	-	-	-	1	-	-	-	-	-	-	1
IOR	-	-	-	-	-	1	-	-	-	-	1
Swiss TPH	-	-	-	-	-	-	1	-	-	-	1
EPFL	1	15	1	8	11	1	11	11	5	4	68
ETHZ	2	13	1	9	5	4	11	4	10	2	61
EAWAG	-	3	-	-	-	2	4	2	1	1	13
EMPA	1	4	1	2	3	4	13	8	5	-	41
PSI	-	1	2	2	3	1	6	3	-	-	18
WSL	-	3	3	1	1	1	2	4	1	-	16
BFH	-	-	-	-	-	-	2	1	-	-	3
FHNW	-	2	-	1	2	-	2	1	-	-	8
FHO	-	1	-	-	-	1	-	1	-	-	3
HES-SO	1	-	-	1	-	-	6	3	1	-	12
HSLU	-	-	-	-	-	-	-	-	1	-	1
SUPSI	-	-	-	-	1	-	1	-	-	-	2
ZHAW	2	2	-	-	1	1	-	3	-	2	11
ZHdK	-	-	-	-	-	-	1	-	-	-	1
TOTAL	22	91	22	59	27	50	135	88	40	11	545

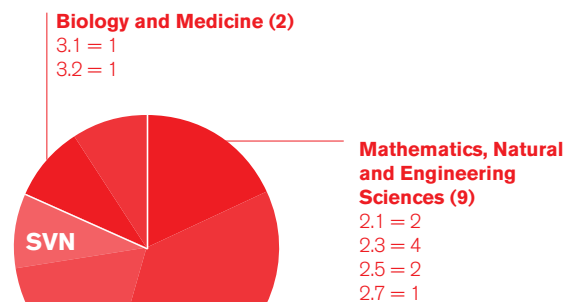
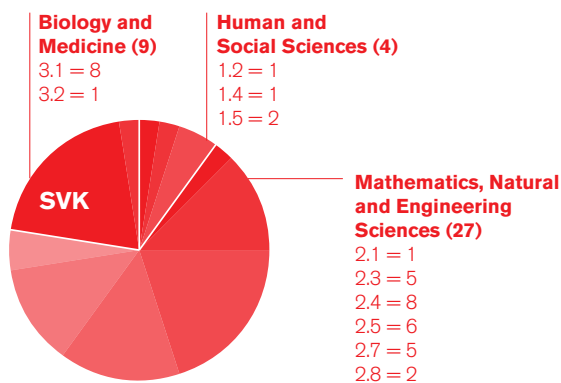
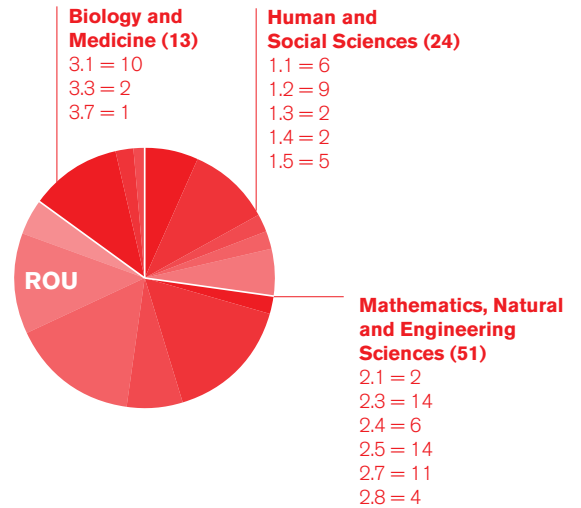
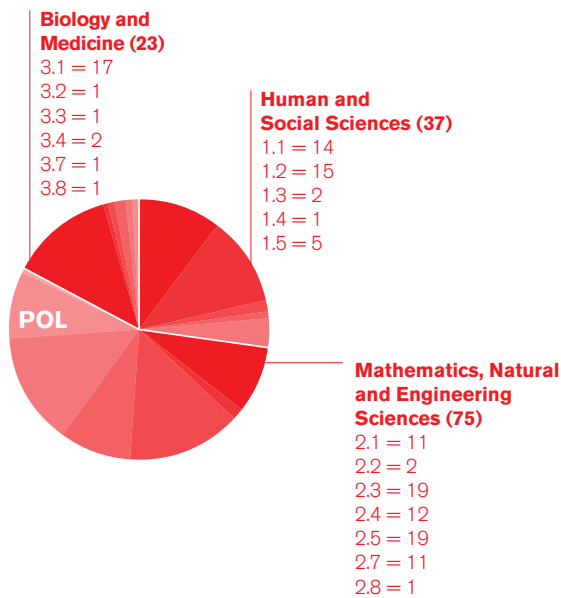
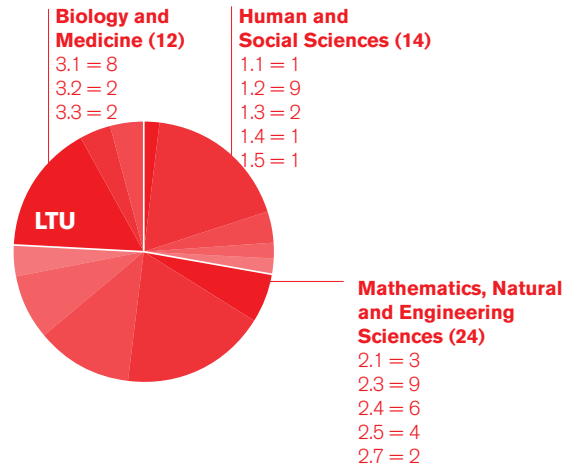
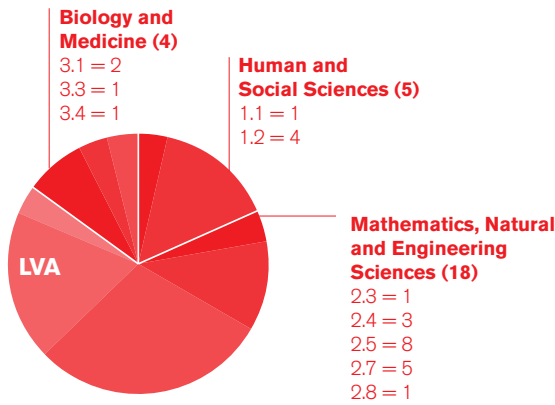
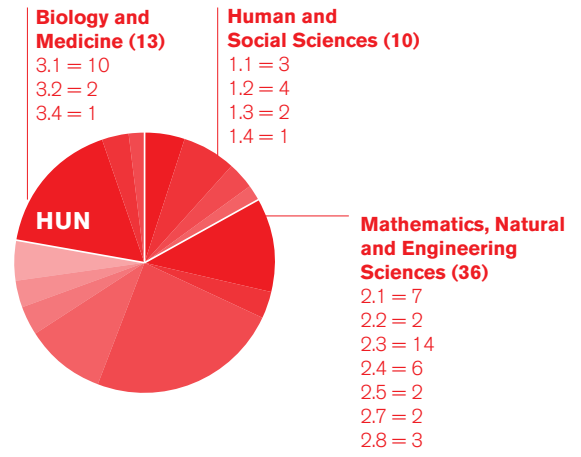
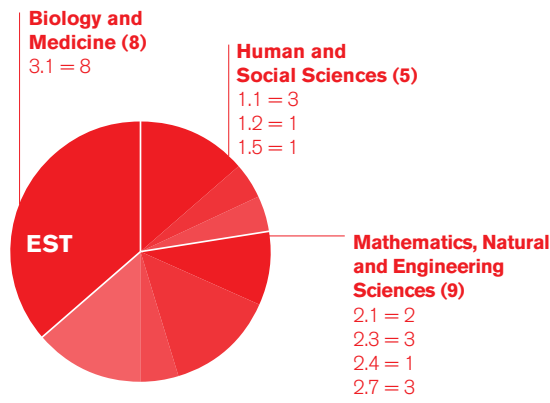
Disciplines

Disciplines of the projects - Overall



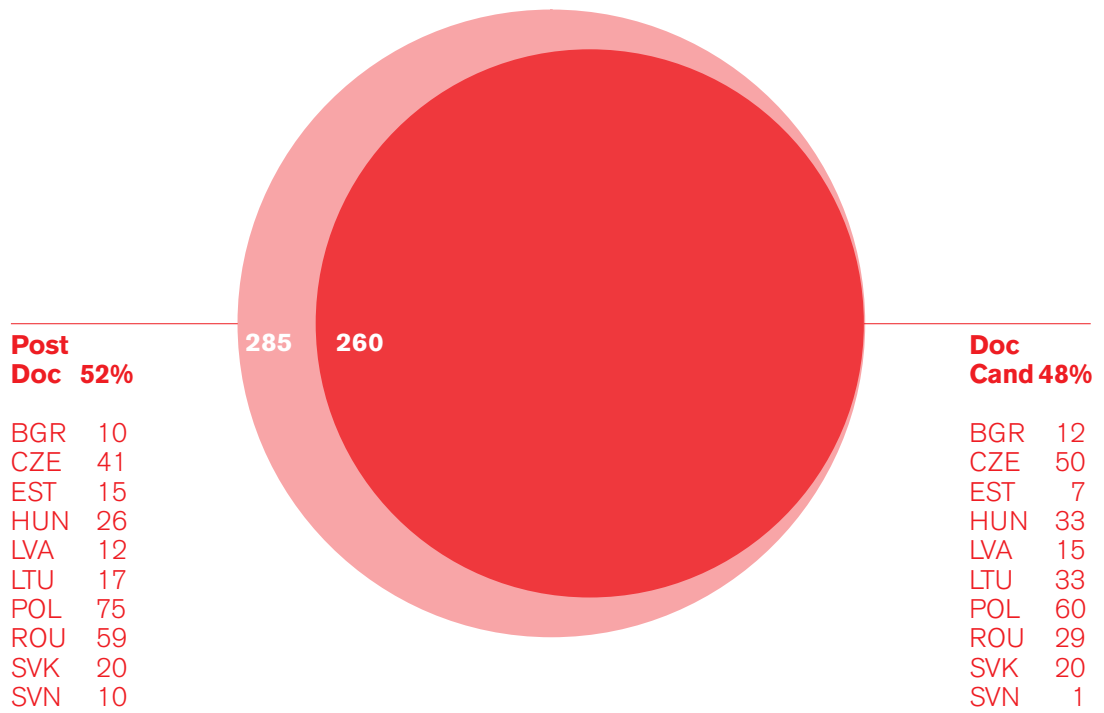
Disciplines of the projects - NMS





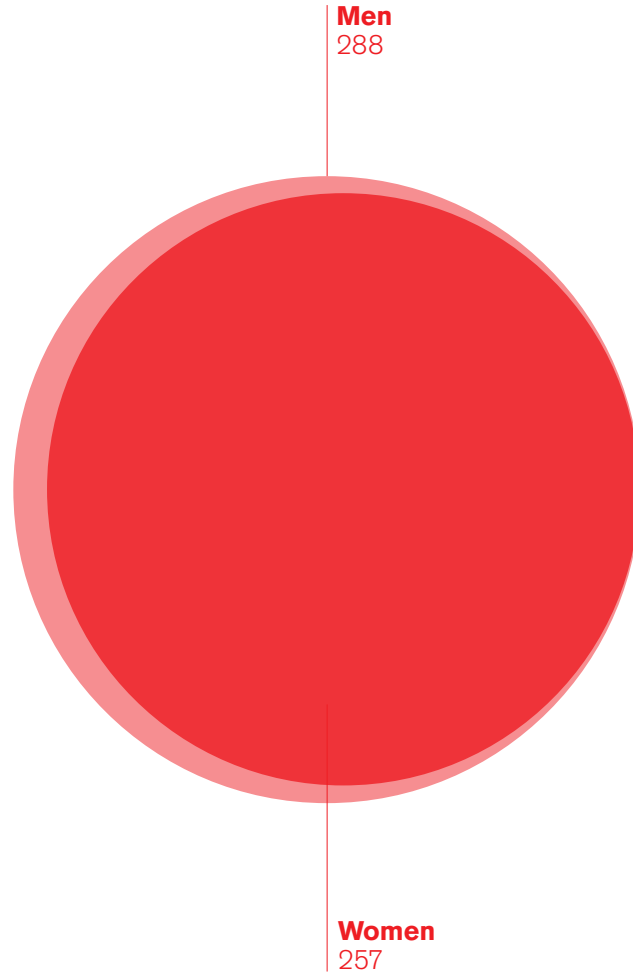
Status

Status of the Sciex Fellows

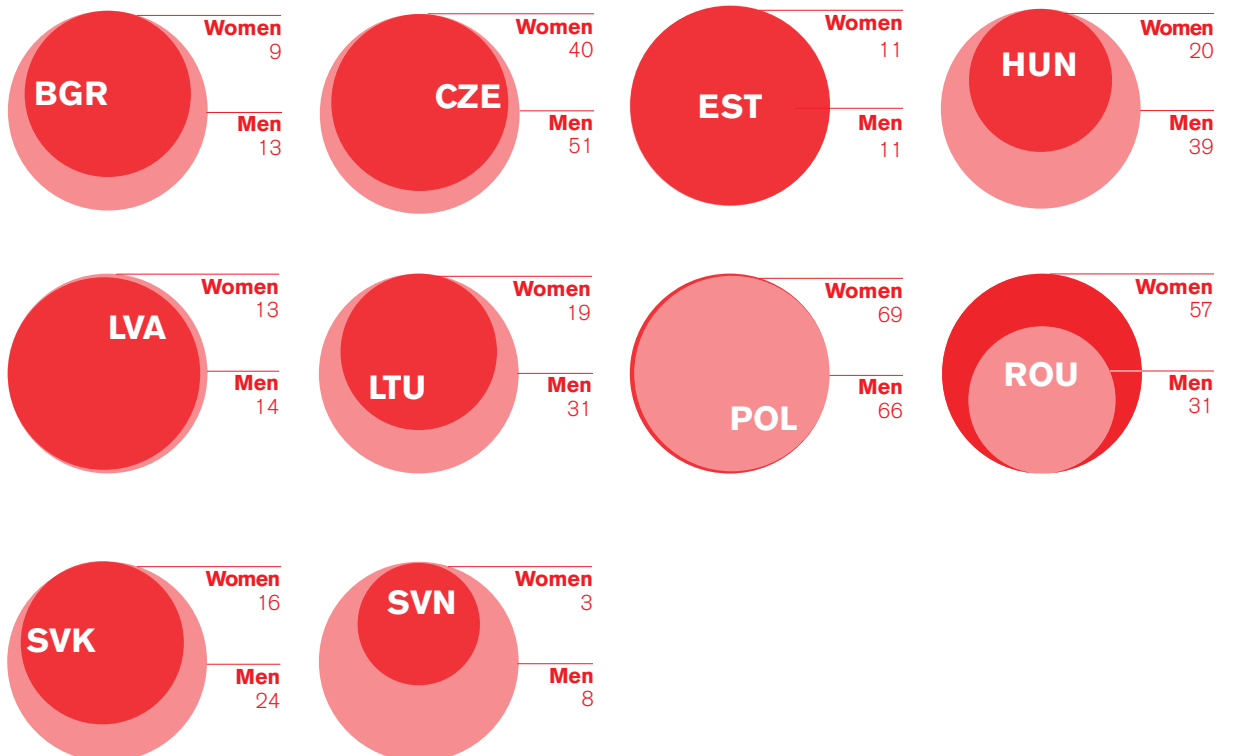


Gender

Gender of the Sciex
Fellows - Overall

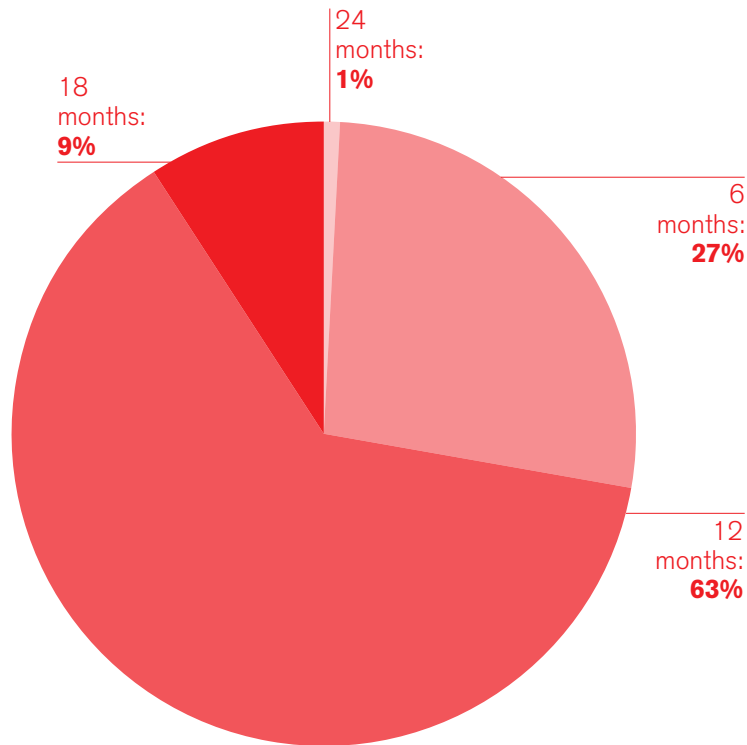


Gender of the Sciex
Fellows - NMS



Duration

Duration of the projects



Typical portrait of a Sciex Fellow

Sciex Fellows were female and male researchers – gender balance was respected throughout the Programme – with an average age of 29.7 years (at the time of application). 50% of the Sciex Fellows were unmarried and without children at the time of their project⁸. Approximately 70% of all Sciex Fellows did not have children and of the remaining 30% with children 70% brought their family to Switzerland.

The Sciex Fellows showed a relatively high degree of internationalisation in their academic CVs. Nearly three quarters of them had completed an educational mobility stay as an undergraduate student or as a member of an academic staff unit before their Fellowship.

The motivations of the Sciex Fellows to do research in Switzerland were for one third the opportunity to gain additional experience through a stay abroad, the content-related requirement of the specific research project, and the utility of research in Switzerland for furthering an academic career.

Half of the Sciex Fellows chose the Host Institution

for its international reputation or that of the Host Mentor. Other criteria motivating the choice of Host Institution were (in descending order): existing collaboration, recommendation of the Home Mentor, availability of the Host Mentor, and the content-related requirement of the research project.

High level of satisfaction regarding the Sciex research stay

The Sciex Fellows were very satisfied with their Sciex experience, and 98% of them would apply for this type of Fellowship again in the future. The same very high level of satisfaction was expressed by the Mentors, 93% of whom declared that they would be prepared to host or send another Sciex Fellow.

This deep appreciation of the Sciex Programme was matched by its top recommendation by all Sciex Fellows as beneficial to professional and personal development and by 98% of the Mentors who answered the satisfaction questionnaire.

Regarding the practical conditions of stay, the major difficulty faced by the Sciex Fellows during their temporary stay in Switzerland was the availability of accommodation in Switzerland, especially in the Lake Geneva and Zurich areas.

⁸The following statistical information is based on the answers provided in satisfaction questionnaires.

The return

Almost 90% of the Fellows intended to pursue an academic career after concluding their Sciex Fellowships, and 90% of them did not encounter difficulties when returning to their Home country.

894 Short-term Visits

A total of 894 Short-term Visits (STV) were conducted by the Host and Home Mentors (see details per NMS in table below). This figure is far below the initial expectation of the 1'410 visits calculated on the assumption that three STV would be conducted within each Sciex project. This result does not however reflect the intensity of the scientific collaboration and relationships that were established and strengthened throughout the Sciex Programme. Many effects distort the overall picture of the dynamism and diversity of the exchanges between the Senior Researchers and need to be briefly explained here: Many visits between the two Mentors were funded by other sources than the Sciex Programme and some visits took place after the deadline of two months after the end of the project. In both cases, the visits were not counted as regular Sciex STV. In other cases, it was not the Mentors themselves who conducted the visit but a team member collaborating on the research project. As only the Mentors were eligible to conduct STV, however, visits by team members were not taken into account in the Sciex statistics. Furthermore, STV were limited to three, meaning that any further visits were not included in the Sciex statistics. Finally, a large number of projects stated having heavily relied on audio and video over IP tools to sustain a regular contact between project partners.

This information shows that the relatively low use of STV should be interpreted carefully and in fact reveals more a problem in the design of the STV than of the instrument itself. This issue needs to be kept in mind and addressed if the Sciex Programme is continued. The positive conclusion is corroborated by the evaluations of the Mentors, more than 80% of whom judged the conducted STV to be useful. The following statements testify to their benefits:

“The visit allowed us to formalise our collaboration and launch new collaborative project initiatives based on the complementarity of the expertise of the two institutions.”

“The mutual exchange of visits is also a very useful way of exchanging academic experience. ”

	Number of conducted STV
Bulgaria	33
Czech Republic	159
Estonia	30
Hungary	96
Latvia	50
Lithuania	90
Poland	209
Romania	148
Slovak Republic	59
Slovenia	20
Total	894



Scientific achievements

Ivanka Dimova from the Medical University of Sofia (BGR) studies embryo cells in the laboratory at the University of Bern (CH), where she has spent one year. ©SDC

Introduction

Sciex Fellowships were designed to develop individual researchers' capacities while fostering scientific progress and innovation. They served as a basis for establishing or enhancing networks between researchers and higher education institutions.

This section sets out the scientific achievements of the 545 Sciex projects. They were the product of cooperation in excellence and have themselves produced a panoply of beneficial personal and institutional developments, ranging from newly acquired language skills to the direct economic impact on local industry in the partner countries concerned.

The multitude of effects, however, reflects the fact that the Sciex projects were all distinctly individual in setting, length and the personnel involved. It goes without saying therefore that a six-month project by a young researcher is more likely to be focused on accumulating laboratory data in order to finish a PhD thesis, while a postdoctoral Fellow might have used a 12-month stay in Switzerland to enhance his publication list and draft a larger European project.

The scientific reports, which form the basis of this publication, provide the researchers' accounts. The variety of the Fellowships also had an impact on the data compiled for this publication. The scientific reports were handed in at the end of each project. As such, they provide a view of the project impact at that moment in time. Owing to the lack of a long-term perspective they can therefore only indicate the nature of impact of a Sciex project, especially in terms of establishing long-lasting personal and institutional contacts between researchers in Switzerland and the NMS in question. Some of the data presented here must therefore be considered with care and in context. The number of publications is usually relatively limited when a scientific report has to be submitted to terminate a project. Therefore, the number of publications deriving from research findings made during the project can be expected to be much higher than indicated, as many projects reported the intention to prepare several additional publications.

Further methodological constraints were encountered when comparing benefits and effects. The diversity of scientific fields covered by the Sciex Programme can also be seen in the forms of cooperation developed by the project teams. We encountered the same challenges put forward by scientometric approaches when comparing quantitative features and characteristics of the very different Sciex projects.

As a consequence, more emphasis is placed on highlighting the diversity and number of effects generated and fostered by the Sciex Fellowships. They will be portrayed in light of the three goals of the Sciex Programme: 'explore', through developing individual researchers' capacities; 'excel', through fostering scientific progress and innovation, and 'exchange', resulting in establishing and enhancing networks between researchers.

1. EXPLORE

Developing individual researchers' capacities

1.1. Research and teaching skills

One of the most prominent comments made by Sciex Fellows concerns the nature of the research Fellowships: the possibility to dedicate one's entire time to a research project without any of the usual academic obligations and financial constraints. The Sciex Fellows benefited immensely from this freedom and the possibility to dedicate all their attention to a specific research project.

In terms of developing the individual researchers' capacities, the Sciex Fellowships presented an invaluable opportunity for young researchers to develop skills in research, training and sometimes even teaching in a foreign setting. They were thus able to lay and consolidate the foundations of their skills as excellent researchers.

The Sciex Programme provided a unique training opportunity especially for the high number of Fellows working in laboratories in the medical, natural science and engineering fields. It allowed them to gain experience in applying specific techniques and methods and to benefit from hands-on training with high-quality laboratory equipment and instruments. Fellows from the humanities reported receiving access to valuable library, information and data sources, a benefit also very often much appreciated by their visiting Home Mentors. Many Sciex Doctoral Candidates profited from following specific graduate courses that served both as training and an exchange platform.

"At the Zurich University of Applied Sciences (ZHAW, CH) I learned new microbiological techniques and expanded my theoretical knowledge in aquaponic technology, which I then applied in laboratory work and in the construction of mesocosmos aquaponic systems. During their visit to Bulgaria, my Host Mentor and his colleague presented aquaponics technology to the researchers and students in my institution. The rector agreed to continue the collaboration with the goal of installing an aquaponic research system on the rooftop of the main building of my Home Institution. Thus, aquaponics will become part of the regular study curriculum for aquaculture and agronomy students at Trakia University (BGR)."

Several Fellows seized the opportunity to immerse themselves in their Host Institution's teaching and training activities. Engaging with a foreign student body, for instance in teaching at bachelor's and ma-

ster's level or giving advanced courses to PhD students, allowed them to prepare for specific future teaching positions and to further develop their own mentoring skills.

"I got involved as a teaching assistant for the laboratory sessions on image and video processing and media security at the EPFL (CH). I supervised several semester projects closely related to the topics of my research project."

Being closely integrated within their Host team Sciex Fellows especially appreciated the regular exchanges they had with colleagues in internal seminars, where they were given the opportunity to improve their presentation and communication skills.

The Sciex Programme required an advanced command of English for Fellows to engage with their project partners. In this context it is worth noting that the visiting researchers from the NMS greatly benefited from Switzerland's linguistic diversity. Nearly all Fellows reported improvements in their skills in German, French or Italian in addition to English, thus enriching their already existing plurilingualism. This can undoubtedly be considered a very positive aspect of their stay abroad as it greatly contributed to their personal development and ability to engage in culturally diverse environments. In this respect leisure, team or departmental activities during their Sciex stay accounted for a considerable part of their integration into the Host community and greatly benefited Fellows and Host Mentors.



Sciex Fellow Andrei Zamosteanu, University Stefan cel Mare of Suceava (ROU) and his Host Mentor Flavio Anselmetti, University of Bern (CH) <https://youtu.be/F8t6SlcnZcY>

1.2. A step towards a degree or higher academic position

From a scientific point of view the Sciex Programme was a great success as 90% of the project teams confirmed having fully achieved all the goals set in the project proposal. The remaining 10% stated that the project was a success although not all research objectives could be achieved or had to be modified. This was sometimes due to the need to shorten projected duration. Several of these cases also show that the Host Institution then provided supplementary funding for a research project in order to finish it. Others modified their objectives in the event of complications with specific experiments or due to health issues affecting the project team.

The Sciex projects have had a very positive impact on Fellows' careers, as stated by 94% of the Fellows in satisfaction questionnaires.

As the Sciex Programme was designed to help researchers aspiring to a higher academic level, such as a doctorate, postdoc status or professorship, Sciex projects frequently turned out to be a "rite de passage" for the Junior Researchers concerned. Sciex projects can therefore be seen as a stepping-stone to the necessary qualification or postdoctoral stay abroad that the faculties at the Home Institutions very often require of students to progress in their academic careers.

For all Fellows the stay in Switzerland brought the opportunity to be intensively mentored in their progress by the Host Mentor while keeping up a regular exchange with their Home Mentor. In several cases where collaboration between the Doctoral Candidate and Host Mentor during the stay was especially intensive the Host Mentor was officially appointed co-tutor for the entire PhD thesis or was chosen to be an external reviewer for the PhD thesis at the Home Institution. In a number of cases cooperation agreements were concluded between the Home and Host University on the joint supervision of doctoral theses. Other Home and Host universities concluded double PhD degree agreements to make the collaboration official.

"The Fellow organised an international symposium on insolvency law in Vilnius (LTU) in which Home and Host

Institutions were the driving forces. As the Home Mentor became president of the Lithuanian Supreme Court, the team also organised workshops at the Lithuanian Supreme Court and at the Court of Appeal of the canton of Basel-City (CH).

It was a perfect background for enhancing future collaboration. During the second part of the Fellow's stay a double doctoral degree agreement was made between the Home and Host Institutions."

In general, the Sciex Programme can be qualified as a career-promoting instrument for the Fellows as it equipped them with a range of crucial attributes and skills for promoting a career in academia such as winning a selection procedure, gaining experience in foreign academic and research surroundings, and building up or enlarging an international network. Furthermore, it has greatly enhanced the Fellows' visibility in the international research community through their publications and presentations, as 91% of the Fellows confirmed in satisfaction questionnaires.

It is thus in keeping with this philosophy that former Sciex Fellows consider their stay in Switzerland to have boosted their careers. Several Fellows confirmed that their Sciex Fellowship helped them to advance to a higher academic position by the time they had completed their project. It would, however, require a long-term study to precisely identify the full impact a Sciex Fellowship on a researcher's career.

"The Sciex project had a crucial impact on my career as my current position as a lecturer is related to the benefits of a Short-term Visit."

1.3. Enhancing visibility: writing skills and publishing

As the Sciex Fellowship was exclusively dedicated to research at a Swiss higher education institution, such a stay proved to be an excellent opportunity for writing and publishing in scientific journals.

Throughout the Sciex Programme publishing had been a relevant aspect of enhancing visibility and developing skills. As such, it constituted an excellent opportunity to enhance writing skills (mostly in En-

glish) and demonstrate junior researchers' academic talent. Some 85% of Fellows indicated in their final scientific report that they had written, submitted or already published an article based on their Sciex research, resulting in an average of 2.25 publications per publishing Fellow. 15% of the Sciex Fellows were not yet able to list any publication at the end of their project. The Sciex Fellows made clear use of this opportunity, leaving a mean of 1.9 publications (scientific articles and book chapters) per Fellow at the end of their stay. Additionally, many Fellows indicated that they intended to publish the results of their research in Switzerland in a renowned scientific journal after their Fellowship.

“The importance of our achievements in electrochemistry was noted by the worldwide scientific community and is reflected for example in the large number of downloads and citations of our papers. The first publication had been already officially cited 53 times at the end of the Sciex stay and selected with two additional papers by the editors for their novelty, significance and potential impact on future research.”

The publications usually involved the Fellow and the Host Mentor as co-authors. Joint publications have thus regularly been one of the results of the collaborative approach and the Short-term Visits between Home and Host Mentor.

1.4. Finding third funds

The acquisition of third funds is undoubtedly considered to be one of the most important skills young researchers have to acquire in order to successfully fund their research projects and sustain their academic career. For many candidates, applying for a Sciex grant was the first time they entered a national competition for an international mobility grant. Drafting a successful proposal for a transnational project involving a Home and a Host Mentor created an additional challenge for the applying candidates and further increased their skills in acquiring project funding.

Once their project had started, most Sciex Fellows had to consider their post-Sciex plans and prepare a follow-up project. The scientific reports delivered at the end of their Fellowship testify to numerous target-

ted funding initiatives. Profiting from well-established cooperations with their Swiss Host Mentor, applications were addressed to funding schemes in Switzerland, in the respective home country, at EU level, and to third parties. As a consequence of their Sciex Fellowship several Fellows have received one of the much sought-after Marie Curie Fellowships.

“Additionally, partly due to my scientific progress during my participation in the Sciex Programme, I was awarded a research grant in the United States by the Polish-U.S. Fulbright Commission. The conditions provided by the University of Geneva (CH) allowed me to significantly increase the pace of my research. Moreover, I was able to participate in several workshops and conferences abroad, which doubtlessly contributed to the development of my work. I achieved more than I expected, and I believe that it will result in both a much higher quality of my PhD thesis and several respectable publications.”

“In comparison to the initial project outline, my research scope and the data I am receiving are far more complex and broader. This project gave me a very good opportunity for learning new techniques to improve my research skills, working in a high-performance team, and learning about the Swiss education system. The Host Mentor has offered me the opportunity to return for one month when the second measurements of the study start, which will allow me to take part directly in the longitudinal project. Thus, my involvement and integration in the research project goes far beyond my initial plans and my proposal.”

1.5. Networking skills

The Sciex Programme has supported the Fellows in establishing and enhancing their scientific network in Switzerland, the European Union and, in many cases, even globally.

On average a Sciex Fellow attended two conferences. 30% of the conferences took place in Switzerland, offering the Fellows the possibility to represent both their Home and Host Institutions. In terms of funding, it was reportedly a great and economical opportunity for Sciex Fellows to engage with the local

scientific community as well as international visitors. 16% of the conferences attended took place in the Fellows' respective home country. This figure shows that throughout the Programme, Sciex projects sustained a certain degree of visibility for the scientific communities of the NMS and their guests.

A majority of 54% of the conferences were attended in third states, predominantly in the European Union and North America, contributing to the higher international visibility of the Junior Researchers. These platforms were extensively used for poster exhibitions, presentations and networking.

The enlargement of the Fellows' international networking is reflected in over 70% of their reports of enhanced contacts with the international academic community in addition to their Swiss colleagues and peers. These contacts were established at international conferences, summer schools or society meetings and, most importantly, with their Host Mentors' collaboration partners in third states. The experience of a Sciex Fellowship in the relatively internationalised Swiss academic world, and for many Fellows the embedding in a larger international research network and in research clusters, significantly boosted the list of their scientific contacts.

“Our legal research project began as a Sciex project between the University of Latvia (LVA) and the University of Geneva (CH) and very soon became multinational in scope and now includes more than 40 representatives from 30 European countries (EU, Switzerland and Russia). Contributors to our studies comprise professors, judges and highly qualified insolvency practitioners. Our study is unique as it represents the largest report on consumer insolvency proceedings of its kind.”

1.6. Soft skills

Cultural exchange was an underlying theme of every Sciex project. In general, cultural exchange is commonly understood as little more than personal exchanges with the local community and acquaintance with its customs and history. From this perspective, the Sciex Programme thus had an even wider impact. The personal benefit of Sciex Fellowships should not be reduced to the acquisition of knowledge, competences or building up a network. Many former Fellows very much appreciated the opportu-

nity to experience different academic structures and processes at their Host Institution, enabling them to transfer good practices to their Home Institution.

Several visiting Sciex researchers experienced a different working environment in their Host Institution and benefited from greater autonomy in their laboratory and sometimes much flatter hierarchies in team compositions. The positive impression this type of cooperation has left was derived from the close mentoring activity by the Home and especially the Host Mentor that was specifically required by the Sciex Programme.

As such, the stays in Switzerland proved to greatly enhance the Fellows' soft skills. Teamwork in internationalised laboratories, tutoring undergraduate and graduate students in a foreign lab strongly impacted their often first experience as expatriates. Living and working in Switzerland made the Sciex Fellows unofficial ambassadors of their countries; they later moved on to become ambassadors for Switzerland and especially Swiss academia. The requirement of a Host and Home Mentor supporting their project confronted them with the challenge of coordinating their research project transnationally and securing the bridge between Switzerland and the NMS.

“During the Short-term Visits of both Home and Host Mentors a collaborative network between the Swiss and Czech teams has been set up. The Fellow now has a long-term position in the Czech Republic and we intend to continue collaborating on East African amphibians in the long-term future. Overall, we view the Sciex Fellowship as an excellent mechanism for developing skills and forming long-term networks of scientific collaboration.”

2. EXCEL - Fostering scientific progress and innovation

The Sciex Programme was an important line of action in Switzerland's efforts to promote economic growth in the New EU Member States as part of its enlargement contribution. Promoting research capacities in those partner countries that play a central role in these efforts as well as fostering scientific progress and innovation was declared a second objective of the Programme.

2.1. Impact on innovation, economies and societies

Although the contribution of Sciex research projects to scientific and economic innovation will have to be analysed within the framework of a long-term evaluation, an immediate impact could already be discerned after a number of projects had been concluded, as numerous examples show. Through funding transnational research links the Sciex Programme has:

- fostered the exchange of knowledge, know-how and techniques;
- contributed to complementary research cooperation activities;
- enabled several duplications to be reduced;
- opened up new research paths, data sources and fieldwork sites for all research parties.

Additionally, these effects have inspired novel and innovative research paths.

"The support of the Sciex Programme has helped to develop an international communication network needed to strike a new interdisciplinary research path that aims to study small RNA functions in allergic diseases with the participation of the University of Tartu (EST) and the University of Zurich (CH)."

Sciex projects initiated manifold scientific innovations with high economic potential. Some projects collaborated closely with the public or private sector during their runtimes while others disseminated their research findings and results in Switzerland and in the NMS after the respective Fellowship came to an end.

"The Sciex Fellow joined our reputed ETH Zurich (CH) laboratory and got involved in the development, setting up and running of the EnvironMICADAS system, which was developed, constructed, and commissioned within a research collaboration agreement

between the ETH Zurich and the Atomki Institute (Debrecen, HUN). Using the experiences gained at the ETH Zurich he assisted in the installation, testing and validation of the new 14C accelerator mass spectrometry (AMS) facility in Hungary. Besides the AMS installation, extensive knowledge was transferred from ETH Zurich to Atomki regarding environmental sample preparation methods. The Host Mentor visited Atomki to check the status of the installed AMS in the Hertelendi laboratory and the sample preparation laboratory. He met representatives of Atomki and agreed on the continuation and strengthening of the cooperation between the two institutions."

"An unexpected research collaboration with the Swiss National Bank (SNB) was established during the reporting period. The aim of this collaboration was to analyse the impact of SNB agreements with national central banks from Central and Eastern Europe on the performance of banks from these countries. The working paper "International swap-lines and their impact on share prices: The case of Swiss-franc exposure in Eastern Europe" was presented at a workshop on foreign currency lending since the financial crisis organised by the SNB in Zurich."

"Academia-industry contacts have been established as a consequence of the Fellowship. In the past six months a strong bond has been built up between the Home and Host Institutions; further cooperation is foreseen through publications, lectures and exchange programmes. The Host Mentor will also give lectures at the Budapest University of Technology and Economics (HUN)."

"The Fellow familiarised himself with the Swiss public transport system. This was very useful for coordinating study visits by several Czech decision-makers, experts and journalists to Switzerland. In four visits they consulted the Swiss Federal Office of Transport, the Swiss Association of Public Transport, the construction

site of the Alptransit Gotthard and the Limmattal marshalling yard, the Zurich new railway city tunnel (Durchmesserlinie), the regional headquarters of PostAuto in Graubünden and the railway traffic management centres of BLS and SBB."

"The webatelier.net laboratory of the Università della Svizzera Italiana (CH) started a new project together with the National Laboratory for Tourism and eCommerce at Temple University (USA), the University of Information Technology and Management in Rzeszaw (POL) and the Polish Tourism Organisation: "New Services and Web Marketing at Polish DMOs study". The purpose of this national study was to gain a better understanding of how Polish tourism organisations develop new services and invest in web marketing activities, in particular for the management of the online reputation of tourist destinations. The goal of the research was to help Polish destination-marketing organisations to provide better services and improve web-marketing offerings."

2.2. Collaborating on global issues

Sciex projects were selected for funding by means of an Evaluation Committee based on their scientific novelty and excellence. Many Sciex projects thus undertook cutting-edge frontier research and showed high relevance for societal, ecological and economic issues, including neurological and pharmacological approaches to Alzheimer disease, photo-medical therapy against cancer, the quest for alternative energies, the effects of climate change on flooding in Alpine regions, reducing air pollution, combating antibiotic residues in drinking water, humanitarian action on refugee crises, or preventing financial crises, to name just a few.

The Sciex Programme saw a panoply of topical research questions addressed in a wide range of research disciplines. It has also highlighted the need to tackle such questions in transnational research proceedings, as the relevance and impact of these issues tend to transcend national and institutional borders.

"Cooperation between the Estonian Environmental Research Institute (EERC, EST)

and the Paul Scherrer Institute (PSI, CH) in our follow-up project ACTRIS will involve Switzerland sharing experiences and transferring knowledge to Estonia to help solve environmental problems related to air quality. The Fellow from Estonia studied the operation of the Aerosol Chemical Speciation Monitor (ACSM) at PSI in preparation for the ACSM measuring campaign in Estonia."

"Cooperation with the Institute of Experimental Physics of Warsaw University (POL) allowed us to obtain for testing a completely new therapeutic agent against liver cancer with high therapeutic potential."

"Due to the cooperation between the University of Zurich (CH) and Semmelweis University (HUN) this project will ultimately lead to the identification of novel pharmacological therapeutic strategies for the treatment of diseases involving translocation products such as paediatric sarcomas."

2.3. Knowledge and know-how transfer

The Sciex Programme was set up to foster the exchange of know-how between all researchers involved. It is nearly impossible to single out a Sciex project that has not led to knowledge or know-how transfer.

"On the basis of the materials that I acquired and my personal experience during my stay in Geneva I prepared the syllabus for a new core course on transnational history in the master offer of my Home Institute in Prague. Moreover, with the help of my Swiss Mentor and my colleagues from the department of history at the University of Geneva, I prepared the first draft of a common Prague-Geneva seminar on the methodology of transnational history which will further develop academic exchanges between Prague and Geneva."

Certain forms of training, especially on highly sophisticated machines or those relying on specific laboratory equipment, have on occasions prompted the Home Institution to invest in new materials – a financial obligation that created a challenge.

“The chemistry and physics of magnetic resonance imaging contrast agents are practically unexplored in the laboratories of the Home Institution, and its newly acquired machines could be an incentive for initiating such a research direction. The Fellow’s training in this domain facilitated by this project could be a first step.”



The training and transfer of skills has, however, not been a one-sided process. While many Host Mentors testify to having greatly benefited from the regular personal and scientific exchanges with their Fellow and the novel approaches brought to Switzerland, a great number of projects have benefited both the Home and Host Mentor and their institutions.

“The benefit for us was clearly that we could expand our view in paleoclimatology from the Swiss Alps to the Carpathians, which so far have been much less investigated.”

In certain cases the Sciex Fellowship even led to a distribution of tasks between the partnering institutions, thus efficiently using synergies and effectively reducing research costs. Other cooperation models involved the sharing of infrastructure between research groups.

“During the respective visits by the Home and Host Mentors, common topics of collaboration in the fields of laser welding and laser 3D manufacturing were identified. The top new laser facility in Bucharest and the excellent characterisation possibilities in Thun (CH) allow for excellent complementarity between the two teams, which can form the basis of a new international or European project.”

3. EXCHANGE - Enhancing or establishing networks between researchers

In the internationalised world of science academic networks are undoubtedly vitally important for sharing discoveries, disseminating innovations, combining strengths and challenging existing viewpoints. Enhancing and establishing networks between researchers and institutions from the NMS and Switzerland was therefore defined as the third objective of the Sciex Programme. The established networks and ties, however, go beyond the partnering countries and extend globally.

According to an enquiry with the Mentors, in the initial phase of the Sciex Programme 60% of Sciex Fellowships relied on existing ties and networks. At the end of the Programme 70% of all Fellows stated that they had relied on a new collaboration, thus clearly demonstrating the very large number of newly developed ties in research and cooperation.

The possibility of sending or inviting a visiting junior researcher was therefore a very attractive solution for enhancing an existing academic bond. With this in mind, it does not surprise that besides matching research interests practically all Sciex project researchers would be eager to consider continuing their collaboration if funding could be secured.

3.1 Intensification of networks during the Fellowship

Short-term Visits constituted an important instrument of the Sciex Programme and were geared to consolidating already existing research partnerships during the Fellowship. STV were used in a strategic manner to discuss progress on projects and research-related questions and most visits led Home and Host Mentors to discuss and draft joint publications. Furthermore, several visiting Mentors benefited from the facilities and instruments available in Switzerland to deepen their research through source and library consultations, the use of the guest laboratories for experiments, or even to collect samples in a new research environment and in the form of field studies.

In addition STV had a great impact on networking and knowledge transfer as several visiting Mentors presented their project-team members and the research project to the faculty of the respective Swiss institution in talks, seminars and guest lectures. STV proved to be especially helpful to Home Mentors engaging with faculties at Swiss higher education and research institutions.

"In the course of the project both involved parties benefited from the knowledge transfer with regard to research methodologies: the Fellow and Home Mentor gained an understanding

of the generalized method of moments (GMM) methodology; the Host Mentor familiarised herself with the data envelopment analysis (DEA). The Fellow and the Home Mentor gained access to the research and library infrastructure of the Institut für Finanzdienstleistungen (CH), including the database resources. Through personal consultations they took advantage of the Host's experience with academic writing for top-rated peer-reviewed journals. Exchange of knowledge took place also in regard to the history and current situation of the banking markets in the respective geographic regions."

"During the Short-term Visit, it was established that the most significant results of this project would be presented by the Fellow at an international symposium to be organised in his Home Institution in the near future. This would provide the opportunity to receive feedback from top-quality researchers from different renowned institutions on the main topics of this project. The Short-term Visit helped enormously to gain a better understanding of the research question, approaches and methods, and was also an excellent opportunity to strengthen the collaboration between the partners of the project and to enhance the scientific networks."

3.2 Continuing collaboration through follow-up projects

The first and foremost issue regarding the continuation of research collaborations usually concerns acquisition of the necessary funding. For this reason the vast majority of project partners had already discussed or drafted ways to continue their collaboration and to secure funding with joint applications prepared towards the end of their Sciex project.

Continuing collaborations within European funding schemes

Having proven to be a well-established international cooperation between Switzerland and the NMS the Sciex Programme was regarded as a valuable asset when submitting joint proposals for competitions with the different funding schemes of the European Union (FP7, Horizon 2020 or COST Action).

"Thanks to the Sciex Fellowship and to the remarkable scientific network of the Host Mentor,

I have had the opportunity to get involved in the COST Action TD1209 Alien Challenge and particularly in the working group dealing with trends and analyses of impacts of priority species. The perfect agreement between the scopes of my Sciex project and that of the COST Action led to very fruitful discussions with leading experts in invasion biology that contributed to the project's outcomes. Furthermore, my involvement in this action has been extremely beneficial in terms of networking and creating opportunities for future collaborations. It also ensures that the outcomes of the project are in line with the current European initiatives (e.g. target 5 of the EU biodiversity strategy to 2020) and consequently meet the requirements of the Romanian Ministry of Environment and Climatic Changes."

A large majority of Sciex project partners have signalled their intention to submit a follow-up research project to a EU-funded support scheme. It is incontestable that the existing and well-established cooperation between the partners in Switzerland and the New Member States of the European Union have had very positive impact in this respect.

Targeting funding sources in Switzerland and the NMS

A large number of Fellows and Mentors had already started targeting sources of funding in Switzerland for joint follow-up projects and research visits by the end of the Fellowship. Most prominently, the Sciex project team members submitted applications for funding to the Swiss National Science Foundation (SNSF) for research and visits, to the Commission for Technology and Innovation (CTI) for funding for applied research and to the Swiss-NMS cooperation programmes. Several Sciex Mentors have profited from their Sciex cooperation to submit further Sciex proposals sustaining other junior researchers.

"A pilot project between the Institute of Chemical Technology in Prague and the Zurich University of Applied Sciences (ZHAW, CH) has been submitted within the scope of the Swiss-Czech Partnership Fund Programme. The partners of the Sciex project jointly approached industries located in Switzerland, Germany, and the Czech Republic to negotiate possible collaborations in the field of microalgal culture technology. The ZHAW is additionally supporting a collaborative project at

the Czech Academy of Sciences (ASCR) using its own seed money. The goal is to establish a new field of science within the ZHAW and to gain a sound experimental and theoretical basis for initiating a future project on the bioaccumulation of rare earth elements."

It is noteworthy in this context to highlight the fact that applications for Swiss funding schemes also aimed to help Fellows finish their research at the Host Institution, thus sometimes prolonging their stay in Switzerland and postponing their return.

Among the projects emerging from the first Sciex calls a submission for the then active SNSF SCOPES programme (Scientific co-operation between Eastern Europe and Switzerland) became popular with a view to continuing the research collaboration.

"The Fellow stimulated – as was the case two years ago – another SCOPES project between Home Mentor, Host Mentor and a partner from Ukraine."

In addition to Swiss cooperation funds, Sciex teams have submitted follow-up proposals to fund schemes in the Fellows' respective home countries.

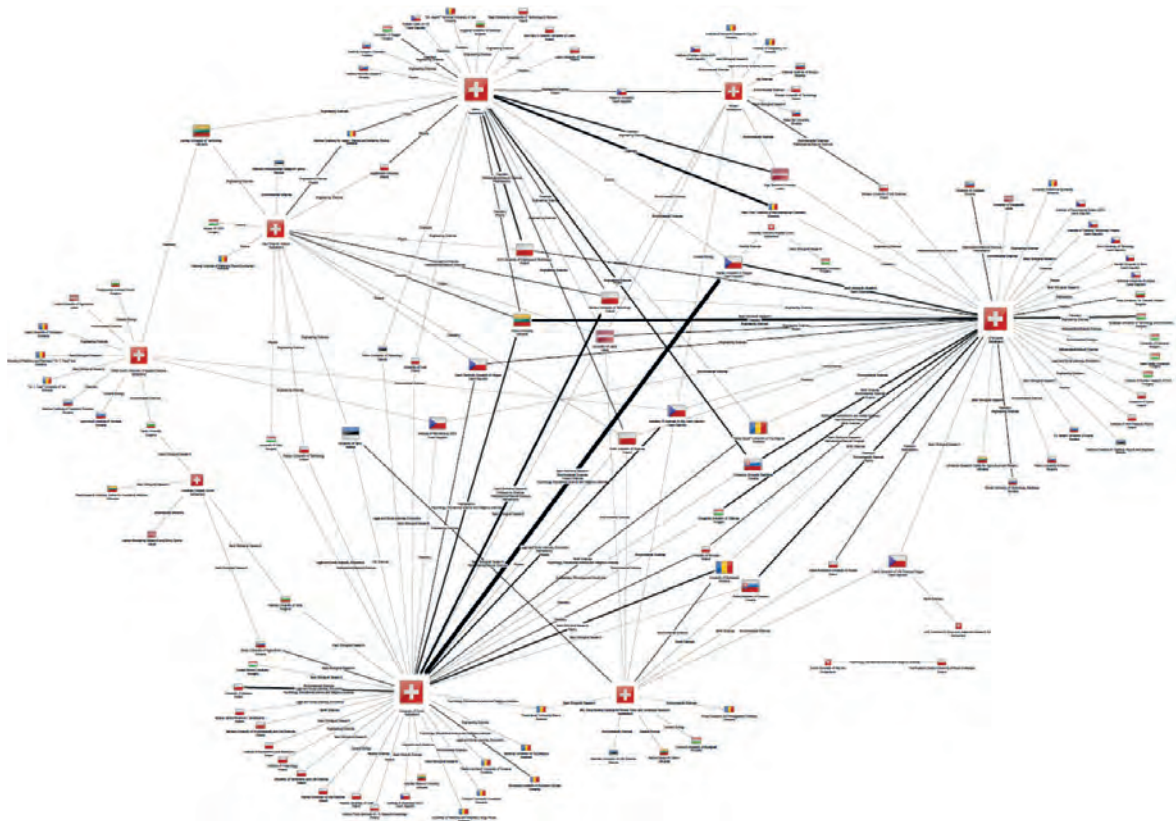
The acquisition of further funding for the Swiss-NMS cooperations has been a clear necessity for Sciex teams in order to sustain their partnerships. With their continuation heavily dependent on the outcome of these submissions it is all the more interesting to learn how weaving a web of collaborations has gone much wider for Sciex projects.

3.3 Further instruments for sustainable ties

While collaboration on submitting joint publications has been one of the most prominent direct continuations of the researchers' cooperation, Sciex project members have used a wide range of instruments to further their collaboration and consolidate their partnerships. Many activities were pursued to establish summer schools or organise joint seminars and conferences after the project had ended.

At the institutional level the Sciex Programme led to the conclusion of several officially recognised cooperation agreements that encompass agreements on student exchanges, e.g. ERASMUS et al., staff exchanges, joint programmes at master's level up to awarding dual de-

Chart on the partnerships between Zurich Host Institutions & NMS Home Institutions and disciplines
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gresses at PhD level. Sciox cooperations have furthermore given researchers in Switzerland and the NMS continued access to laboratories, experimental facilities, libraries and research sites through personal connections and institutional agreements.

“This Sciox project also fostered collaboration between Eawag (CH) and the Warsaw University of Life Sciences (POL) and greatly boosted the scientific and personal development of the Fellow. This fruitful collaboration on water quantity and quality modelling will continue in the future. Currently, a joint MSc thesis is advertised for interested students.”

Several Home and Host Mentors have as a consequence of the good collaboration invited their counterparts to join prestigious positions on boards of international research associations or become editors of academic journals, thus enhancing their visibility and paving the way for their integration into the international scientific community. In some cases Sciox projects have gone as far as initiating personnel exchanges at senior researcher level that led to appointments of guest lecturers in the partner institution

or to nominations as co-supervisors for PhD candidates.

“The Host Mentor has been elected to serve within the doctoral committee at the University of Iasi (ROU). Joint project proposals for the Scopes programme and another Sciox proposal were submitted. Additionally, the Host Mentor was appointed as associate professor at the Alexandru Ioan Cuza University in Iasi. A memorandum of understanding has been established for student exchanges and the possibility of Swiss UAS master students to take part in the PhD programme in Iasi has been constructively discussed.”

In the spirit of the Sciox Programme to promote European cohesion one should not forget to mention one of the probably most relevant side effects of the Sciox projects: Innumerable bonds of friendship have developed between researchers from the NMS, Switzerland and other parts of the world. The fact that practically all scientific reports testify to good or excellent cooperation is thus a gratifying result for the Sciox-NMS^{ch} Programme.

Conclusion

Over the seven years of its runtime, the Sciex Programme has initiated and fortified the research connections between the New Member States of the EU and the Swiss research area, ever so often in the context of a larger European co-operation cluster.

Sciex projects have followed a Fellowship scheme similar to other research co-operation funding instruments. They have, however, discerned themselves by sustaining an active participation of the Home Institution and the Home Mentor in the project development. This specificity has also contributed to the sustainability of the co-operative approach and the reduction of brain drain effects.

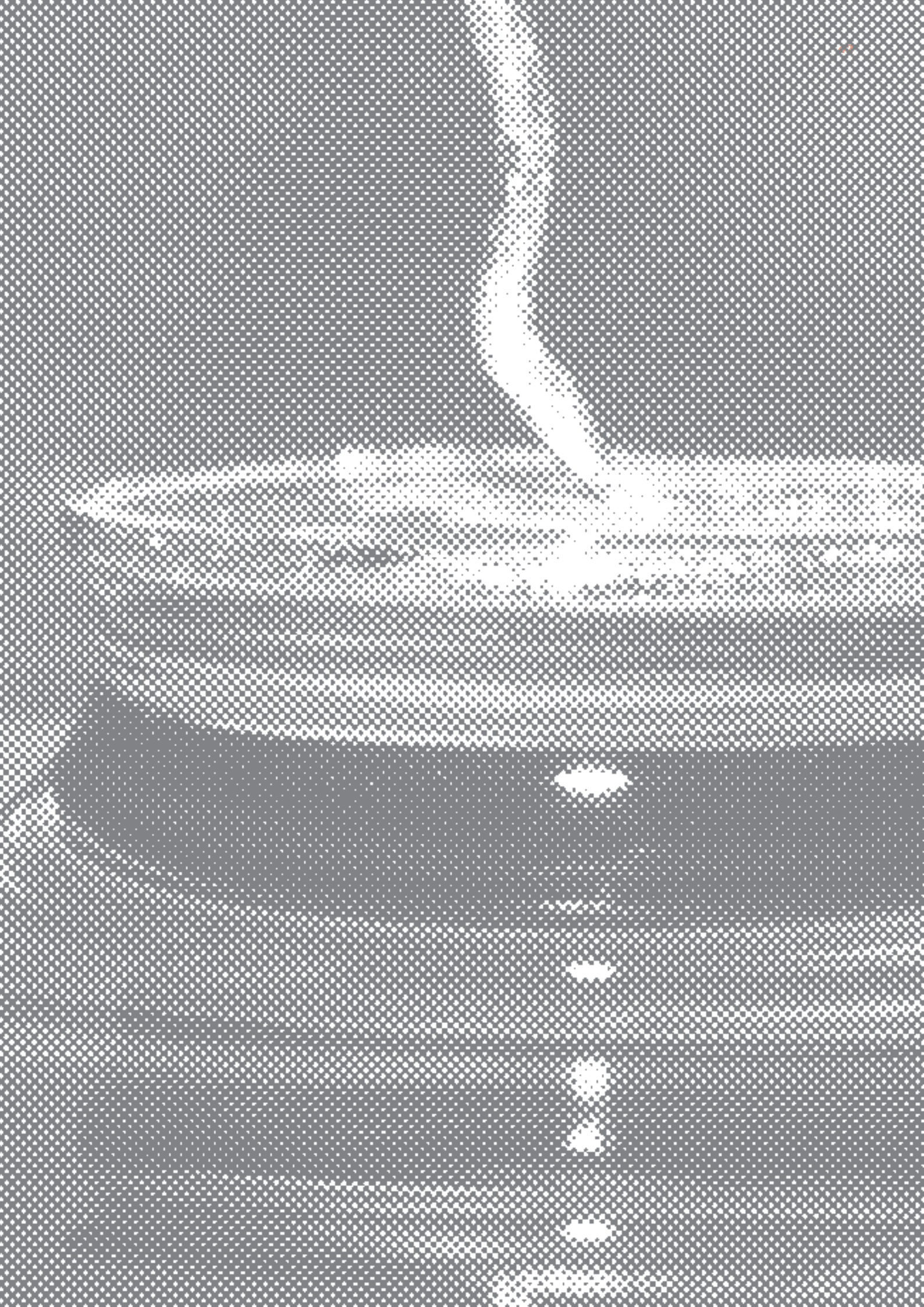
In summary Sciex has been and continues to be appreciated for the following:

- It gave scientists the possibility to focus on their research and to develop their skills without any financial constraints and without the distraction of other commitments. The Fellows have greatly benefitted from working as expatriates in an internationalized surrounding, while profiting from a double mentoring. The stays proved to be an excellent opportunity for the Fellows to generate a scientific exploit and gave them the chance and freedom to fully invest into their international visibility through writing and publishing in renowned scientific journals. The Fellowships can therefore be rightly seen as outstanding career-promoting instrument for young researchers from the NMS. Additionally, they enhanced the Fellows' ability to acquire third funds and greatly enlarged their soft skills. The Sciex Programme has supported Junior Researchers from the NMS in establishing and enhancing their scientific network in Switzerland, the European Union and in many cases on a global scale;
- It offered an excellent opportunity for all partners to acquire know-how, to share it and to enable their institutions, economies and societies to benefit mutually. Sciex projects have spurred scientific and economic innovation. A direct impact of the projects could already be recorded during and after their runtime, as numerous examples show. Directed at funding transnational research collaboration, Sciex has fostered the exchange of knowledge, know-how and techniques, thus reducing costly duplications. It has thus contributed to complementary research co-operations, while giving access to new data sources and fieldwork sites to all research

parties. These effects have inspired very promising novel and innovative research paths;

- It has proven to be a motor for a multitude of researchers' networking activities from the NMS and Switzerland. Networking activities have taken place in a multitude of ways during and since the Sciex Projects. Short-term Visits have, for instance, been used in a strategic manner in order to discuss project progress and research related questions or to draft joint papers or research proposals. This has led most researchers to submit joint proposals to European, NMS or Swiss funding schemes in order to continue working together. While collaborative work in joint projects or joint publishing has been one of the most prominently featured direct continuation of the researchers' co-operation, Sciex project members have used a large range of instruments at mentor, staff or student level to further nurture their collaboration efforts and seal their partnerships.

The Sciex projects have undisputedly been an extraordinary opportunity for researchers in Switzerland and the NMS to mutually benefit from a co-operation project. Of course, several challenges had to be faced. Personal-life events, professional changes affecting team members, or problems with the experiments conducted presented obstacles that research funding is alas frequently confronted with. Nevertheless, the scientific reports submitted by the 545 conducted Sciex projects clearly confirm that all the objectives of the Sciex Programme were reached by clear margin. The multitude of benefits derived from the Sciex Programme for all partners, their institutions and their countries consequently call for its continuation.



— Focus on selected Sciex research projects

Hanging meniscus: Sciex project «Exploring Fundamental Reactions in Converting and Storing of Chemical Energy» conducted by Vitali Grozovski from the University of Tartu (EST) at the University of Bern (CH)



Round table at the Sciex Closing Conference -
 “Preparing Young Researchers for the Europe of Tomorrow” -
 September 25th 2016 - Zurich

Introduction

Mid 2015, the Sciex Programme asked each Swiss Institution to select the three most representative Sciex projects they had hosted. The criteria for selection were the alignment of the Sciex projects with the goals of the Programme and the fulfilment of the following criteria:

- Achievement of the project objectives;
- Impact on the scientific career of the Fellow;
- Visibility of research (dissemination at conferences, publications, etc.);
- Embedding of the project within the research strategy of the Host Institution;
- Sustainability of the cooperation between institutions.

On the basis of the results received from the Swiss Host Institutions, the Sciex Programme has proceeded to a final selection. The Sciex projects presented in the following chapter are the results of this selection.

They give an insight into the multifaceted research activities conducted within the Sciex Programme and into the achieved scientific progress and innovation obtained through the Sciex Programme and their researchers.

These Sciex projects were also presented during the poster session of the Sciex Closing Conference, which has taken place on September 25th 2015 in Zurich (www.sciex.ch heading “Sciex Closing Conference 2015”).



Industrial wastewater treatment by membrane bioreactor technology



Code
09.012

Discipline
Environmental Sciences

Duration
01.10.2009 - 31.12.2010

Country
Czech Republic

Sciex Fellow
Lukáš Dvořák,
Institute of Chemical Technology Prague

Sciex Host Mentor
Thomas Wintgens,
University of Applied Sciences Northwestern Switzerland

Sciex Home Mentor
Jiří Wanner,
Institute of Chemical Technology Prague

Project description

Nitrogen removal from municipal and industrial wastewaters is required as nitrogen species are linked to serious water pollution issues. Industrial wastewaters also often contain hardly biodegradable or toxic compounds. Hence, they have to be properly treated prior to discharging into water bodies. Membrane bioreactor (MBR), as used in this study, represents a promising option for the treatment of such wastewaters. The influence of industrial wastewater on MBR performance was investigated in a pilot-scale installation and evaluated based on influent and effluent parameters as well as kinetic tests. The MBR was fed by a mixture of industrial and municipal wastewater at constant flow. The loading with industrial wastewater was increased stepwise from 0 to 75% to study adaptation of nitrifying bacteria.

Stable nitrification was observed until 40%, with ammonia removal around 98%. Breakdown of nitrification ($\text{NO}_2\text{-N} \rightarrow \text{NO}_3\text{-N}$) was observed at a 40% industrial wastewater dose and nitrification ($\text{NH}_4\text{-N} \rightarrow \text{NO}_2\text{-N}$) at 50%. The inhibition effect to the MBR decreased substantially after several months of exposure, while the inhibition of referential activated sludge remained constant.

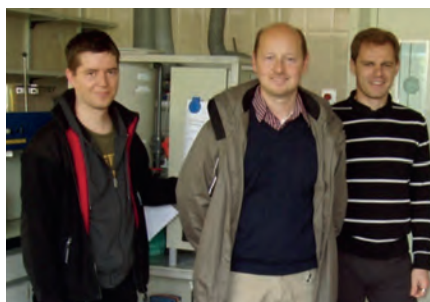
Benefit for the Sciex Fellow

The Sciex project impacted my further career significantly as the obtained results became an important part of my PhD thesis and the gained experiences supported my work within the postdoctoral programme at Technical University of Liberec.

The results of the Sciex project were also published in the prestigious international journal *Water Research*, increasing my personal reputation in this field. The project outcomes contributed to transfer the acquired knowledge to my current on-going research as well as teaching activities.

Continuation of the collaboration

Established cooperation between Home and Host institution as well as personal connections to project team members still continue. Moreover, I have spent another eight months within my postdoctoral stay and several Short-term Visits at the Host Institution. We have also recently prepared several mutual research and education projects and published another research paper. Besides that, the Sciex project gave me a unique opportunity to experience working in an international environment with research at the highest level.





Nanobio-Interfaces for Photocatalytic Solar Hydrogen



Code
10.013

Discipline
Chemistry

Duration
01.03.2011 - 31.08.2012

Country
Hungary

Sciex Fellow
Krisztina Gajdane Schrantz,
University of Szeged

Sciex Host Mentor
Artur Braun, Swiss Federal Laboratories for Materials
Science and Technology Empa

Sciex Home Mentor
Andras Dombi,
University of Szeged

Project description

Photocatalytic properties of metal oxides are primarily used to destroy harmful organic waste. It has turned out, however, that organics can also have a beneficial effect. The question in this project was: can a biofilm survive the harsh chemical conditions on a metal oxide and yet deliver a very good solar photoelectrochemical performance? We combined a conventional semiconductor metal oxide, hematite, with a light-harvesting protein Phycocyanin (PC) to enhance the water splitting into H_2 and O_2 . This environmentally benign energy can be a sustainable solution for the energy supply of mankind without fossil fuels. We showed a way to immobilise PC on a nanostructured hematite surface to obtain a stable photoanode providing higher photocurrent in neutral electrolyte. We have designed a photoelectrochemical cell that can be connected to the gas chromatograph. In this way the solar hydrogen generation can be followed *in situ*. The results were published in five international journals and led to continued funding from the VELUX Foundation, shared with the Laboratory for Biomaterials in the field of protein engineering.

Benefit for the Sciex Fellow

During the Nanobio-Interfaces for Photocatalytic Solar Hydrogen Sciex project I gained valuable experience in working in an international team. The research required collaboration within and beyond Empa which broadened my scientific connections in this research field. The results achieved during the Fellowship represented a relevant part of my habilitation thesis, which I defended in November 2015 at the University of Szeged (Hungary). In Hungary habilitation is a requirement for promotion to associate professor.

Continuation of the collaboration

The collaboration between the Host and Home Institutions continued with another successful postdoctoral Sciex project of the Sciex Fellow Zoltán Németh in 2014 and with the master's thesis of Gergő Péter Szekeres in 2015. I was given the opportunity to join Empa as a visiting scientist in 2014 and 2015 within the framework of industrial projects. We still collaborate on joint publications and are working on a joint H2020 project proposal which could support our long-term collaboration.



From left:
Krisztina Schrantz
and Artur Braun
at the Sciex Closing
Conference in
Zurich.

Protein
functionalized
hematite
photoanode
surface
(SEM image).



“Chemical pressure” in FeSe superconductors (PreFeSe)



Code
10.048

Discipline
Chemistry

Duration
15.11.2010 - 14.11.2011

Country
Poland

Sciex Fellow
Anna Krzton-Maziopa,
Warsaw University of Technology

Sciex Host Mentor
Kazimierz Conder,
Paul Scherrer Institut PSI

Sciex Home Mentor
Janusz Płocharski,
Warsaw University of Technology

Project description

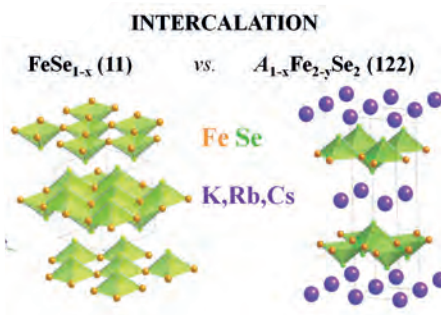
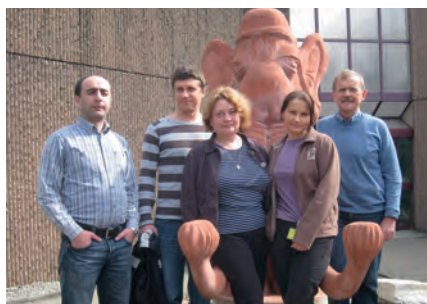
The aim of the project was to investigate the effect of chemical pressure on the superconducting properties of iron-based layered materials, as well as the synthesis and characterisation of new high temperature (HT_c) superconductors. The main achievement of the project is a discovery and characterisation of single crystals of a new superconductor: Cs_{0.8}Fe₂Se₂ with T_c=27K and detailed studies of its analogues intercalated with Rb and K. Another success is the first growth of BaFe₂Se₃ crystals with superconducting transition ~ 11K. Investigations on single crystals of A_x(Fe_{1-y}Se)₂ using muon spin rotation (μSR) technique, electrical resistivity, magnetisation and differential scanning calorimetry (DSC) showed microscopic coexistence of magnetism and superconductivity and enabled elaboration of chemical phase diagrams for K, Rb and Cs intercalated materials. Neutron, x-ray powder and single crystal synchrotron diffraction studies helped to solve crystal and magnetic structures for the new superconducting materials and revealed nanoscale phase separation of superconducting and magnetic phases and distinct Fe-vacancies ordering attributed to manifestation of superconducting state.

Benefit for the Sciex Fellow

Development of the new materials and their characterisation in close collaboration with the best specialists in the field. This enabled the formation a scientific collaboration network which continues to work well. The major significance of our results was noted by the global scientific community; we also published 12 papers related to the subject in highly ranked journals and are frequently cited. The first publication about the new Cs-intercalated compound together with two others was chosen by the editors according to the following criteria: substantial advances or significant breakthroughs, a high degree of novelty and significant impact on future research for IoP Select.

Continuation of the collaboration

The PreFeSe project opened new perspectives for future work on intercalated iron chalcogenides. The problem of nanoscale phase separation in single crystals of the A_xFe_{2-y}Se₂ systems in particular has become a much investigated topic recently. In addition, during my follow-up stay at the host institution another new iron-based hybrid superconductor was discovered laying the foundations for the next project related to organic-inorganic superconductors, which has been conducted at WUT in cooperation with partner institutions. The scientific collaboration between partner institutions is still underway.



From the right:
K. Conder (Host Mentor/PSI),
A. Krzton-Maziopa (Sciex Fellow),
E. Pomjakushina (PSI),
V. Pomjakushin (PSI),
Z. Sieradina (PSI).



Mesoscopic Spintronics



Code
11.085

Discipline
Physics

Duration
01.02.2012 - 31.01.2013

Country
Slovak Republic

Sciex Fellow
Peter Stano,
Slovak Academy of Sciences

Sciex Host Mentor
Daniel Loss,
University of Basel

Sciex Home Mentor
Vladimir Buzek,
Slovak Academy of Sciences

Project description

Our project concerned research on quantum information processing and its implementation in solid state systems, which are similar to the semiconductor technology used to manufacture 'ordinary' computer chips. The quantum information processing is based on the laws of quantum mechanics and allows to qualitatively outperform its classical counterparts in certain important tasks like cryptography, drug design, or database searches. To maintain quantum information is, however, very demanding and has not been mastered yet on a large scale. Currently the research focuses on scaling up designs that proved the functionality of a small number of quantum bits (smallest units of quantum information), improving the single quantum bit by making it more robust, and developing potentially error-free schemes based on topological quantum computing. Our investigations contributed to progress in all three of these areas. For example, we discovered a mechanism according to which systems hosting topologically protected quantum bits tune themselves into the desired regime, spontaneously recovering from disturbances coming from the environment (see Klinovaja et al. Phys. Rev. Lett. 109, 236801 (2012)).

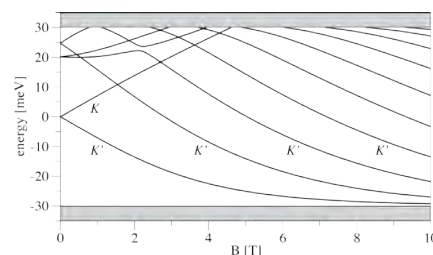


Benefit for the Sciex Fellow

The opportunity to work in a leading scientific centre is invaluable for anybody who aims to reach such a level. Even in the current internet age where information is instantly available from literally anywhere, there is no substitute for experiencing the scientific work culture and local spirit at first hand. Only through long-term active daily participation can one see how cutting-edge research is done and how it should be done. This hands-on personal experience was a game changer for me in terms of my skills and career. Let me put it this way: you have to live it to understand what it means.

Continuation of the collaboration

The stay was an enjoyable and scientifically fruitful endeavour, during which the Sciex Fellow became an integral part of the host research group. An active link with the home institution was kept throughout, and has resulted in a long term-collaboration: joint research continues until today, encompassing co-authored publications, mutual visits and broader contacts (two more Slovak nationals have started PhD studies with the Host Mentor since this Sciex Fellow's stay). We consider the stay to have been completed in accordance with the spirit of the Programme and to have succeeded well beyond expectations.



Peter Stano (second from the left) at work.

Spectrum of a graphene dot, from Phys. Rev. B 89, 085414 (2014).



Understanding the origin of Lyman-alpha emission and absorption in galaxies

<http://galaxy.asu.cas.cz/~ivana/>

<http://www.unige.ch/sciences/astro/fr/news/lapres-big-bang-se-devoile/>



Code

11.114

Discipline

Astronomy, Astrophysics and Spatial Sciences

Duration

01.10.2012 - 30.09.2013

Country

Czech Republic

Sciex Fellow

Ivana Orlitová,
The Czech Academy of Sciences

Sciex Host Mentor

Daniel Schaerer,
University of Geneva

Sciex Home Mentor

Bruno Jungwiert,
The Czech Academy of Sciences

Project description

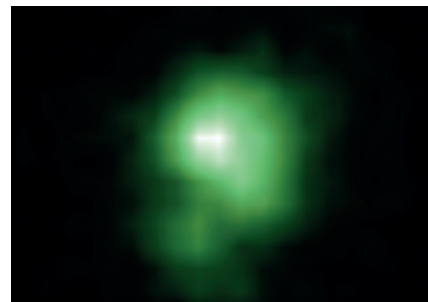
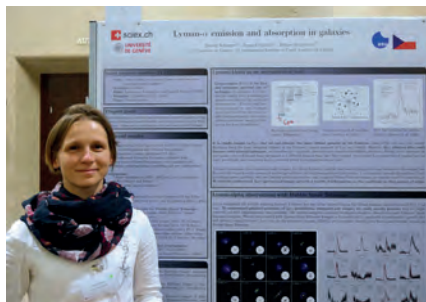
One of the main drivers of today's astrophysics is the exploration of the early universe: observations and theory collaborate to build an accurate model of cosmological evolution and structure formation. Most of our knowledge about distant galaxies relies on observations in the ultraviolet Lyman-alpha line of hydrogen, the most abundant cosmic element. However, radiation in this line is easily absorbed and re-emitted multiple times before it can escape the galaxy and reach the observer. Numerical models are therefore needed to understand this complex process. The goal of the project was to interpret Lyman-alpha images and spectra from the Hubble Space Telescope using numerical models developed at the University of Geneva. We have studied in detail twenty nearby galaxies that resemble those in the early universe. We have correlated the observed parameters with theoretical ones, and have derived conditions in each galaxy using the models. We noticed features that led us to the great discovery of yet another aspect of the early galaxies: we have identified the type of galaxies that were the sources of ultraviolet radiation that ionised the universe in the first billion years.

Benefit for the Sciex Fellow

Through the Sciex project, I significantly broadened my scientific scope. I had the opportunity to work on cutting-edge topics that are among the drivers of present-day astrophysics. I was introduced to large international teams, which opened the doors to conferences and to participation in other projects. Involvement in observations using world-leading astronomy facilities evolved into my leadership of several projects at the Hubble Space Telescope. After Sciex, I succeeded in obtaining an independent 3-year funding for a follow-up project in my home country, and will soon apply for a new one.

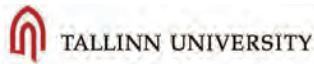
Continuation of the collaboration

Collaborations established through the Sciex Fellowship remain active and have resulted in several follow-up projects. We have been successful in regularly obtaining observational time at the Hubble Space Telescope, which is a highly competitive procedure. These observations have led to fascinating discoveries, including the long-sought-after ultraviolet radiation from galaxies which caused the ionisation of the early universe. Our results were published in Nature in January 2016. We are now jointly working on new data, and are planning further observations.



Ivana Orlitová at the Sciex Closing Conference in Zurich.

Image of a "Green Pea" galaxy which emits ionising ultraviolet radiation, obtained with the Hubble Space Telescope.
© Ivana Orlitová



Bildbewusstsein - Husserl's theory of image consciousness



Code
11.201

Discipline

Philosophy, Psychology, Educational Sciences and Religious Sciences

Duration

01.09.2012 - 31.08.2013

Country

Estonia

Sciex Fellow

Regina-Nino Mion,
Tallinn University

Sciex Host Mentor

Gianfranco Soldati,
University of Fribourg

Sciex Home Mentor

Tõnu Viik,
Tallinn University

Project description

The aim of my research is to elucidate and defend Edmund Husserl's theory of image consciousness (Bildbewusstsein) and his phenomenological analysis of how we experience pictures. More specifically, we aim to find out whether Husserl's theory of the experience of images is applicable to modern and contemporary art, particularly to strongly site-specific art, unaided ready-mades, and contemporary films and theatre plays in which actors play themselves.

According to Husserl, image consciousness comes into play every time we look at a painting, contemplate a photograph or see a film. Image consciousness is akin to perception but is more complex than perception in Husserl's philosophy. It involves three objects: 1) the physical image, that is the physical thing made from canvas, paper or other materials (e.g. a painting called 'Emperor Maximilian'); 2) the image object, that is the appearing image (e.g. the image of the emperor); and 3) the image subject, that is the depicted scene or object (e.g. the emperor).

Benefit for the Sciex Fellow

Given that there is no one in Estonia who is specialised in my research topic, my project contributes greatly to philosophical research in Estonia. I have already published an article in the Estonian research journal *Studies on Art and Architecture* (Volume 23, No. 1/2, 2014).

After completing my doctoral studies I received a one-year postdoctoral grant from the Turkish Government (TÜBİTAK) to do research at Istanbul Technical University. I will also apply for a postdoctoral research fund from the Estonian Research Council.

Continuation of the collaboration

We plan to organise joint seminars for doctoral students from Tallinn University and the University of Fribourg.



Regina-Nino Mion and Tõnu Viik at the Sciex Closing Conference in Zurich.

Doctoral dissertation's defence of Regina-Nino Mion.



Eidg. Forschungsanstalt für Wald,
Schnee und Landschaft WSL

Comparison of genetic diversity at neutral and selective loci in *Pinus cembra*, a scattered tree species at its ecological margin in the Carpathians



Code
12.071

Discipline
General Biology

Duration
01.10.2012 - 30.09.2013

Country
Hungary

Sciex Fellow
Bertalan Lendvay,
Corvinus University of Budapest

Sciex Host Mentor
Felix Gugerli,
Swiss Federal Institute for Forest, Snow and Landscape WSL

Sciex Home Mentor
Maria Margit Hoehn,
Corvinus University of Budapest

Project description

Swiss stone pine (*Pinus cembra*) is a key species in the high-mountain areas of the Alps and the Carpathians. In the Carpathians, Swiss stone pine occurs in scattered, small populations, hence it is at enhanced risk of extinction. The aim of the project was to analyze the population history of Swiss stone pine in its Carpathian environment and to compare the genetic diversity in the Carpathian populations using molecular markers that are both neutrally evolving (chloroplast and nuclear microsatellites) and potentially selective (single-nucleotide polymorphisms). The overall low genetic differentiation of the Carpathian populations of Swiss stone pine reflects the contraction and fragmentation of larger distribution areas present during the glacial periods. The weak connection among populations means that sustaining sufficiently large population sizes is essential for the persistence of the species. We found that populations of Swiss stone pine in the Eastern Carpathians are influenced by non-native individuals, most likely planted individuals of Siberian stone pine, whose use should be avoided in the future to avoid hybridization between species.

Benefit for the Sciex Fellow

The Sciex project made a major contribution to the accomplishment of my PhD through both the scientific results achieved and the new data analytical methods I have learnt in Switzerland. I found these new skills extremely important for the remaining part of my PhD project following my return to Hungary. Spending a year in Switzerland with the Sciex project also clearly helped me to receive a research position in my field of science immediately after returning home. Here, I made an effort to share experiences and knowledge with fellow students and colleagues in my new laboratory.

Continuation of the collaboration

Close collaboration has remained between my Home and Host Mentors since the end of the Sciex project. This collaboration includes the processing of Swiss stone pine samples and building data sets for further research based on results achieved during the course of the Sciex project. I also had the chance to maintain my collaboration with WSL, my Host Institution; one and a half years after finishing my Sciex project, I was very pleased to have the possibility to return to WSL for nearly a year and to work there as a postdoc.



A picture of the object of the study: a native Swiss stone pine stand in the Carpathian Mountains.



Landscape integration in the procedure of environmental impact assessment



Code
12.139

Discipline
Environmental Sciences

Duration
01.11.2012 - 30.09.2013

Country
Romania

Sciex Fellow
Andreea Nita,
University of Bucharest

Sciex Host Mentor
Alexandre Buttler,
Swiss Federal Institute of Lausanne EPFL

Sciex Home Mentor
Ileana Patru-Stupariu,
University of Bucharest

Project description

Through the proposed project "Landscape integration in the procedure of Environmental Impact Assessment" we succeeded in improving understanding of applied landscape analysis and impact evaluation in environmental reports in Romania and Switzerland. This project helped to find out the differences between the two analysed countries regarding the EIA procedure and landscape integration from the scientific and policy-making point of view. Conclusions of this project led to the development of an optional master course taught to Romanian students within the specialisation called integrated assessment of the environmental status. The mentioned course envisages the transfer of information and knowledge, the identification and quantification of the influences on landscape induced by different categories of activities. The conclusion of the research performed through LANDEIA project was illustrated and published in the ISI paper: Niță, A., Buttler, A., Rozyłowicz, L., Pătru - Stupariu, I., 2015. Perception and use of landscape concepts in the procedure of Environmental Impact Assessment; case study – Switzerland and Romania. *Land Use Policy* 44, 145 - 152. (doi:10.1016/j.landusepol.2014.12.006)

Benefit for the Sciex Fellow

Besides the experience gained from working with the scientists from the EPFL, the fellow participated in different workshops that helped improving her knowledge. The fellow obtained her PhD title in September 2014, one year after the Sciex project ended. She is now a researcher at the Centre of Landscape-Territory-Information Systems and a council member at the International Association for Landscape Ecology (IALE Romania). The Fellow also participated in several international conferences which allowed her to connect with specialists in the field.

Continuation of the collaboration

The collaboration between the University of Bucharest and the École Polytechnique Fédérale de Lausanne continued even after the Sciex project ended. The collaboration between institutions continued through the project Windland, where researchers from ECOS, LASIG, WIRE labs (EPFL) and CELTIS (University of Bucharest) worked together on a Swiss-Romanian research project performed between 2013 and 2015. The Fellow will pursue her research in other postdoctoral programs.



Andreea Nita and Alexandre Buttler at the Sciex Closing Conference in Zurich.

Andreea Nita and Ileana Patru-Stupariu in Lausanne, 2013.



Resolution Funds and Financial Stability



Code
12.188

Discipline
Legal and Social Sciences, Economics

Duration
01.10.2013 - 30.09.2014

Country
Romania

Sciex Fellow
Alina-Nicoleta Radu,
Bucharest University of Economic Studies

Sciex Host Mentor
Christian Ewerhart,
University of Zurich

Sciex Home Mentor
Gabriela-Victoria Anghelache,
Bucharest University of Economic Studies

Project description

The idea of the project was driven by a series of events that have characterised recent years, such as the need to redesign financial regulation and supervision policies worldwide following the recent financial crisis, the necessity for several countries that had no other choice to bail out their banking sectors in order to avoid systemic failure, and the need to ensure adequate frameworks to deal, at an early stage, with failing institutions in order not to support moral hazard over the long term.

The project therefore aimed to analyze the interconnection between resolution funds, institutional setting and financial stability through the accounting mechanics of resolution funds and how this interconnection affects the stability of a financial institution with respect to a sequence of random shocks, through analyzing the interconnections between the repo market and financial stability.

In this context, the goals of the research projects were to quantify the premium a bank should pay to a resolution fund and to analyze the policy implications regarding banking resolution and its effects on the institutional settings for different countries and on financial stability.

Benefit for the Sciex Fellow

The added-value and benefit of the research project can be measured by different types of activities, such as: participation in scientific events (a conference organised by the Deutsche Bundesbank and SAFE, the 41st Annual Meeting EFA, courses organised by Barcelona GSE, Sciex workshops organised in Romania and Switzerland); attendance at research seminars at the University of Zurich and networking; 3 Short-term Visits; as well as the impact on the Fellow's career: a position as associate professor at the Bucharest University of Economic Studies in Romania.

Continuation of the collaboration

The collaboration continues through the on-going work on 2 joint publications. The first research paper develops a framework for quantifying the premium a bank should pay to a resolution fund and for investigating the impact of contingent convertibles (CoCos) issuance on the magnitude of such premiums. The second develops a stylised model to analyze the interconnections between the shadow banking, the repo market and financial stability with the main focus on obtaining a closed form solution for repo rates and haircuts by enriching a model developed previously by the Host Mentor.



Alina-Nicoleta Radu and Gabriela-Victoria Anghelache at the Sciex Closing Conference in Zurich.



Comparing self-evaluative emotions across languages and language varieties

http://wa.amu.edu.pl/wa/Krawczak_Karolina



Code

12.237

Discipline

Linguistics and Literature

Duration

01.07.2013 - 30.06.2014

Country

Poland

Sciex Fellow

Karolina Krawczak,
Adam Mickiewicz University in Poznań

Sciex Host Mentor

Martin Hilpert,
University of Neuchatel

Sciex Home Mentor

Małgorzata Fabiszak,
Adam Mickiewicz University in Poznań

Project description

This project aimed to improve our understanding of how cultures differ. Specifically, it aimed to contribute to a deepened cross-cultural understanding of Polish, British English and American English by focusing on a small aspect of culture, namely that of self-evaluative emotions (shame, embarrassment and guilt). This specific aspect of culture was chosen because self-evaluative emotions are particularly dependent on social assumptions and hence very likely to exhibit cross-cultural differences. Through a combination of qualitative analysis and multivariate statistical modelling of textual data, the project revealed the anthropological profiles of the three communities in the area under investigation as well as the linguistic profiles of the three emotion categories. By advancing a method that produces falsifiable results, the study also laid methodological groundwork for further research in the corpus-based investigation of cross-cultural differences, with special focus on complex socio-cultural phenomena such as those designating negative social emotions.

Benefit for the Sciex Fellow

The Sciex project enabled me to develop the methodology for my habilitation and to lay methodological groundwork for future research into cross-cultural variationist research in linguistics and corpus-based research in emotion studies. I published two articles and had another article accepted for publication in an internationally recognised journal. I also presented my research at several international conferences and gave an invited presentation at the Swiss National Center for Affective Sciences. Finally, the project has significantly increased my visibility through the team's cooperation.

Continuation of the collaboration

The Sciex project resulted in multifaceted cooperation among our team members. We organised a successful methodological workshop at a prestigious international conference. We are currently editing a special issue for an international journal (*Folia Linguistica*), for which our joint article has received positive reviews. Finally, we also gave two joint presentations at international conferences.



©Anita Proszowska



Krawczak, K. (2014). Shame, embarrassment, and guilt: Corpus evidence for the cross-cultural structure of social emotions. *PSICL* 50(4): 441-475.



Control mechanisms of adult neural crest-derived stem cells in the skin



Code
12.269

Discipline
Basic Biological Research

Duration
01.05.2013 - 31.10.2014

Country
Latvia

Sciex Fellow
Vadims Parfejevs,
University of Latvia

Sciex Host Mentor
Lukas Sommer,
University of Zurich

Sciex Home Mentor
Una Riekstina,
University of Latvia

Project description

During embryonic development, multipotent neural crest stem cells (NCSCs) give rise to various neural and non-neural cell types. Intriguingly, neural crest-derived cells with a similar developmental potential to embryonic NCSCs have also been isolated from adult tissues, including the skin. However, the nature and functions of these cells are very poorly understood. Given their broad developmental potential and location in the body, adult NCSCs might represent an easily accessible source suitable for cell replacement therapy.

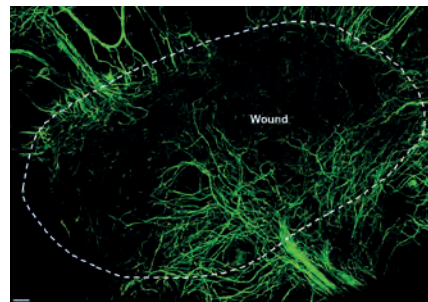
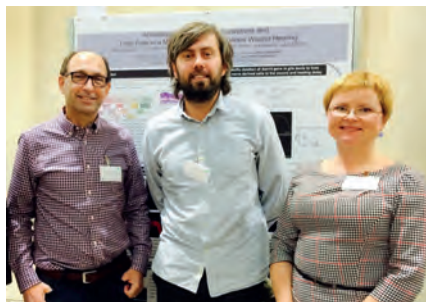
In this project we address these issues, focusing on adult nerve-associated neural crest derivatives and their potential role during wound healing. We find that upon injury, a fraction of nerve cells become activated, detach from the nerve, and populate the regenerating skin. Some of these cells appear to de-differentiate while other cells maintain glial properties. Interestingly, genetic ablation of these cells by conditional knockout of the NCSC transcription factor Sox10 interferes with efficient wound healing. Our results indicate that these cells secrete a cocktail of growth factors and mediate their effect through activation of other cell types important for wound healing.

Benefit for the Sciex Fellow

I am very grateful to Sciex for supporting my project. It has created perfect conditions for me to fully concentrate on the task and to learn and practise new techniques. However, what I found even more important was the environment I was immersed in. Regular discussions of different projects carried out in the host lab helped me to grasp diverse approaches taken to solve scientific problems. I feel that this experience has helped me to better understand what I want from a scientific career and opened up many possibilities for future choices.

Continuation of the collaboration

In my opinion further collaboration between the Home and the Host laboratories could be possible within the framework of a Sciex project if the initiative is continued. Otherwise collaboration could be possible on a project-dependent basis using the expertise of both labs. Another idea that was discussed by mentors was the organisation of a scientific summer school at the University of Latvia with the participation of the professor from the Host lab.



Whole mount staining of the wound showing nerves sprouting within the newly formed tissue. Dashed line indicates the margins of the wound. Neural marker Tubulin b111 labeled with green.



eawag
aquatic research

Fate of organic micropollutants in advanced treatment of wastewater with ozone



Code
12.333

Discipline
Environmental Sciences

Duration
01.10.2013 - 30.09.2014

Country
Poland

Sciex Fellow
Ewa Borowska,
Silesian University of Technology, Gliwice

Sciex Host Mentor
Christa S. McArdell, Swiss Federal Institute of Aquatic
Science and Technology Eawag

Sciex Home Mentor
Korneliusz Miksch,
Silesian University of Technology, Gliwice

Project description

According to the new Swiss Water Protection Act, wastewater treatment plants (WWTPs) will need to be upgraded with advanced treatment like ozonation to eliminate micropollutants. The aim of the MICROZO project was to study the fate of relevant pharmaceuticals during ozonation. Laboratory-scale experiments provided the kinetics of the ozone reaction with seven compounds and elucidated transformation products (TPs) formed during ozonation of cetirizine (CTR) and fexofenadine (FXF). The results were validated at the full-scale ozonation facility in WWTP Neugut in Dübendorf, the first facility with such permanent equipment.

The selected compounds showed considerable variation in reactivity with ozone from high (CTR, $k_{O_3}=1.7 \cdot 10^5 \text{ M}^{-1}\text{s}^{-1}$) to low (candesartan, $k_{O_3}=563 \text{ M}^{-1}\text{s}^{-1}$). For CTR and FXF, 8 and 7 TPs were proposed, respectively, and their respective N-oxides were identified as main TPs. The study performed at the full-scale facility proved that ozonation is an efficient method to remove micropollutants from wastewater (e.g. CTR and FXF elimination >80 % even at the lowest applied ozone dose of $0.35 \text{ g O}_3 \text{ g}^{-1} \text{ DOC}$) and confirmed the formation of CTR and FXF N-oxides.

Benefit for the Sciex Fellow

The Sciex scholarship allowed me to deepen my knowledge on ozonation processes and my skills in chemical analysis of micropollutants in ambient waters. My stay at Eawag, a leading institute for research in aquatic science and technology, let me work with top-class scientists and build up my network. The Sciex Programme also had a huge impact on my personality and development of my soft skills. Encountering scientists of different nationalities and from different disciplines allowed me to broaden my perspective and taught me how to be more flexible and open to people from other countries and cultures.

Continuation of the collaboration

After the Sciex scholarship I stayed at Eawag for 4 months to work within the framework of the EU project DEMEAU (Demonstration of promising technologies to address emerging pollutants in water and waste water). This allowed me to continue the research of my Sciex project and to gain more scientific experience.

Since a significant part of my PhD project was performed at Eawag, my Home Mentor proposed a co-supervision of my PhD thesis to my Host Mentor.

Currently, I am working as a research assistant in a project on urine treatment also at Eawag.





Iba-1 protein contribution to neuropathic pain mechanism



Code

12.366

Discipline

Basic Biological Research

Duration

01.02.2014 - 31.01.2015

Country

Romania

Sciex Fellow

Alexandru Florian Deftu,
University of Bucharest

Sciex Host Mentor

Isabelle Decosterd,
University of Lausanne

Sciex Home Mentor

Violeta-Paula Ristoiu,
University of Bucharest

Project description

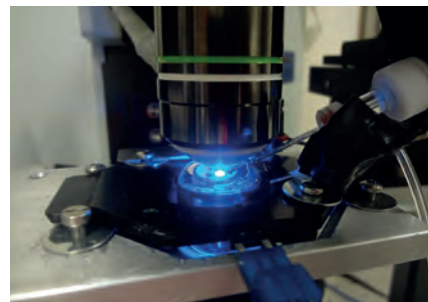
The subject of my project was slightly changed from the inhibition of Iba1 in microglia to the description of electrophysiological changes in potassium currents from microglia as a reading for their activation status in culture and slice after spared nerve injury (SNI). In patch-clamp experiments, after $G\Omega$ -seal formation, the whole-cell configuration was obtained under voltage clamp at a holding potential of -20 mV. The results showed that the resting membrane potential of microglia cells in culture shifts to more negative values two days after SNI. The current density and membrane conductance show an increase two days after SNI compared with control. The acute application of $Ba(OH)_2$ illustrates the contribution of different inward rectifying potassium channels to the recorded current. The acute application of CsCl shows two different potassium channels' populations or different kinetics of the same population of potassium channels. Our main conclusion was that microglia expresses potassium currents which increase two days after surgery.

Benefit for the Sciex Fellow

I obtained the Sciex project during the period when I was still a PhD student. This meant a lot for me as a researcher because that was the period in which I discovered the field of science, started to collaborate with national and international groups, and being in Switzerland for one year meant a lot for my career. During this period I improved my research skills and learned many things from Swiss society. It opened my eyes and mind to think of the big research plan, not losing track of the small troubleshooting you encounter from time to time.

Continuation of the collaboration

My Host Mentors were satisfied with my research and encouraged to keep alive the collaboration between the two labs. In the months after coming back to Romania, we submitted a new application to IASP Collaborative Research Grants with a project on 'Targeting Microglial Potassium Channels to Treat Pain', which was successful. At present this grant is ongoing and we hope it will continue in the future.



Sciex team (from left to right) Marc Suter, Violeta-Paula Ristoiu and Alexandru Florian Deftu at the Sciex Closing Conference in Zurich.



ETH zürich

Phenotyping dynamic leaf growth under drought (PhenoDrought)

<http://www.fcg.ethz.ch/research/StressResilience/modelling-leaf-growth-under-water-stress.html>



Code
13.032

Discipline
Basic Biological Research

Duration
14.05.2014 - 13.05.2015

Country
Lithuania

Sciex Fellow
Kristina Jonaviciene,
Lithuanian Research Centre for Agriculture and Forestry

Sciex Host Mentor
Bruno Studer,
Swiss Federal Institute of Zurich ETH Zurich

Sciex Home Mentor
Gintaras Brazauskas,
Lithuanian Research Centre for Agriculture and Forestry

Project description

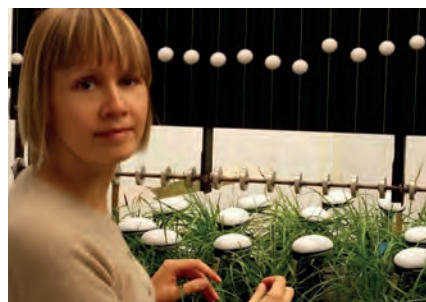
Water deficit limits plant growth and crop productivity. Maintaining high and stable yields under unfavourable conditions is thus a priority for crop improvement by breeding. The project aimed at (i) identifying the point when a plant stops growing owing to water deficit and (ii) phenotyping a collection of perennial ryegrass (*Lolium perenne* L.) plants in order to identify and characterise drought-tolerant genotypes. For the dissection of the plant's response to water deficit, a novel, largely automated and non-destructive phenotyping platform for real-time analysis of leaf elongation rate (LER) was used. The data obtained were integrated into an ecophysiological model, which revealed that plant growth in response to water deficit is not linear but has three phases, demarcated by growth reduction and growth arrest. The first phase depicts 'normal' growth, when water in soil is freely available and the growth is governed by temperature, followed by the second phase 'decrease', where the LER is controlled by temperature and soil moisture, and the terminal phase 'arrest', where leaf growth stops. The results were highly reproducible and revealed large differences within a diverse panel of 204 perennial ryegrass genotypes.

Benefit for the Sciex Fellow

The scholarship gave me a deeper insight into my research field and at the same time enabled me to approach it from a different angle. A back-to-back approach from PhenoDrought and Transcriptome profiling projects offered a holistic view for correlation between phenotypic and transcriptome changes throughout a water stress period. The different methods learned and used to achieve the project goals expanded my horizons and shaped me as a versatile researcher. The experience gained working with outstanding researchers and their teams formed a vision of my own future research team and encouraged me to aim for a leader's position.

Continuation of the collaboration

Collaboration is ongoing and focuses on genetic dissection of abiotic stress resistance traits in perennial ryegrass and functional validation of the causal genes. The phenotyping platform developed during the project is being implemented at the home institution to study physiological responses of perennial ryegrass to low temperature stress. Research teams at Home and Host Institutions are collaborating on application to finance follow-up project.



Sciex team (from left to right) Gintaras Brazauskas, Kristina Jonaviciene and Bruno Studer at the Sciex Closing Conference in Zurich.

Kristina Jonaviciene preparing the phenotyping platform and plants for drought experiment.



Structure and reactivity studies with “inert” and redox-active room temperature ionic liquids at well-defined single crystal electrodes by the use of conductive-probe atomic force microscopy



Code
13.060

Discipline
Chemistry

Duration
01.03.2014 - 28.02.2015

Country
Hungary

Sciex Fellow
Soma Vesztergom,
Eötvös Loránd University

Sciex Host Mentor
Peter Broekmann,
University of Bern

Sciex Home Mentor
Győző G. Láng,
Eötvös Loránd University

Project description

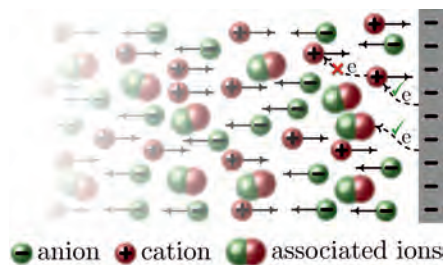
Electrochemistry is a fascinating branch of science which studies how electricity can be produced in a basically chemical way or, vice versa, how certain chemical processes may be facilitated by the use of electricity. Sciex project No. 13.060 was based on a research plan in this field. The initial goal of the project was to carry out structure and reactivity studies on the interfaces of highly ordered metals and so-called ionic liquids (i.e. salts that are molten by room temperature). Yet at the end of the project many other results were also achieved: important physico-chemical characteristics of some ionic liquids were described; a data acquisition and analysis system was developed in order to study the electrical behaviour of single molecules; a new theoretical model was developed for the digital simulation of electrochemical systems containing multiple working electrodes, and various contributions were made to the study of electrochemical processes involving the reduction of CO_2 (a gas known for its strong greenhouse effect). The project also resulted in a total of seven scientific papers which were published in peer-reviewed, high impact international journals.

Benefit for the Sciex Fellow

The year I spent at the University of Bern with a Sciex Fellowship had a great impact on my academic career. I returned to my Home Institution, the Eötvös Loránd University of Budapest as an assistant professor in a tenure-track position at the Department of Physical Chemistry. Now I am holding classes in physical chemistry and in electrochemical instrumentation. My research activities are also on the rise, my publication list is growing and I am getting more and more invitations to international scientific meetings as a keynote or invited speaker.

Continuation of the collaboration

Sciex established a well-functioning network of collaboration between my Home Institution and the University of Bern. Since the project ended, I had two additional Short-term Visits visits to Bern where I continued to work with the group of my former Host Mentor, Peter Broekmann. We published two more papers together, and other manuscripts are in preparation. With Peter Broekmann we are also working jointly as topical editors on a section of a new Encyclopedia of Interfacial Chemistry, and we are involved in common research projects.



From left: Soma Vesztergom and Peter Broekmann at the Sciex Closing Conference in Zurich.



Hybrid-Polymer Transparent Electronic Circuits (HYPOTEC)



Code
13.126

Discipline
Engineering Sciences

Duration
15.09.2014 - 14.09.2015

Country
Bulgaria

Sciex Fellow
Nikolay Kurtev,
Technical University of Sofia

Sciex Host Mentor
Silvia Schintke,
University of Applied Sciences Western Switzerland

Sciex Home Mentor
Slavka Tzanova,
Technical University of Sofia

Project description

The project HYPOTEC is in the field of organic (polymer) electronics and aims to investigate the characteristics of thin organic conducting films or structures created by inkjet printing. The majority of the research work is made on PEDOT:PSS polymer. The influence of additives on the conductivity of polymer thin films is investigated in order to create a high conductivity composite with better stability on UV radiation. A new method for conductivity measurement is developed in order to make the characterisation of the films without any mechanical interactions. The problem of UV degeneration of inkjet printed PEDOT:PSS structures is widely studied and a relation between the conductivity degeneration factor and the thickness of the structures is found by applying a new developed method for average thickness evaluation of linear structures. Another goal of the project is the investigation of potential barriers between organic and classical semiconductors. In order to extract the junction parameters a photo-sensitive device based on inkjet printed PEDOT:PSS and thin layer of ZnO is created and the parameters of the heterojunction are extracted by a modified I-V curve-based technique.

Benefit for the Sciex Fellow

The HYPOTEC project gave me an opportunity to undertake the most important part of the research work for my thesis. Only three months after finishing my work in Switzerland my thesis was completely finished. During the project I was able to participate in important scientific conferences and to meet people in my field of research. I have initiated a project for science communication with some of them. Personally, my stay in Switzerland helped me realise a lot of things about good practices in an academic institution which I would like to introduce in my university in Bulgaria.

Continuation of the collaboration

The collaboration between the Home and Host institution will definitely continue. Our organic semiconductors laboratory in Sofia can help with some of the technological processes which are not implemented in COMATEC-LANS so that it can work on more complex common projects. The cooperation will continue with master and doctoral students' exchange programmes for which we already have some financial support. A future perspective could be the continuation of the research work on the topics mentioned in the HYPOTEC project which will help to create more efficient photo-sensitive devices.



Sciex team (from left to right) Silvia Schintke, Slavka Tzanova and Nikolay Kurtev at the Sciex Closing Conference in Zurich.

BRG**molab****ETH** zürich

Structurally Informed Interactive Design

<http://sea.kurilluk.net/>
<http://block.arch.ethz.ch/>
<http://block.arch.ethz.ch/brg/publications/469>
<https://youtu.be/1GLQYu4sL50>



Code
13.260

Discipline
Engineering Sciences

Duration
01.09.2014 - 31.08.2015

Country
Czech Republic

Sciex Fellow
Lukas Kurilla,
Czech Technical University in Prague

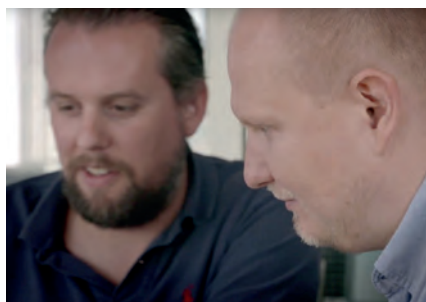
Sciex Host Mentor
Philippe Block,
Swiss Federal Institute of Zurich ETH Zurich

Sciex Home Mentor
Milos Florian,
Czech Technical University in Prague

Project description

My doctoral research aimed to provide architects with an interactive finite element (FE) analysis through the development of a middleware digital tool that supports designers' decision-making and trains their structural intuition. Architects are usually not trained to use expert FE analysis software directly. Simplified FE modelling, as well as a concise presentation and interpretation of analysis results therefore needs to be developed. The simplified result interpretation should help architects identify structural problems and guide them towards structurally improved designs in early stages of the design process.

The large number of existing approaches that seek to achieve similar goals was the main reason I applied for the Fellowship with the Block Research Group (BRG) at ETH Zurich. The BRG developed RhinoVAULT, a tool that emerged from research on structural form-finding, to intuitively create and explore compression-only structures and to give the user an understanding of the underlying structural principles. I learnt a lot from comparing our different approaches. The most important breakthrough was the post processing of the materialisation and sizing following form exploration.



Benefit for the Sciex Fellow

The Sciex Fellowship extended my structural knowledge of form-finding methods. During the Fellowship, I attended structural design courses and realised how useful graphic statics (GS) is and how important it is to teach this method at architecture schools. I am now sharing the knowledge gained during the Fellowship with my students in Prague. I would like to implement GS and the tool I developed into structural engineering classes. After my doctoral studies, I believe that this Fellowship will help open the door to another interesting post-doc position abroad.

Continuation of the collaboration

Our collaboration with my Host Mentor continues. We are planning to publish a paper in a computer-aided design journal. I also plan to organise a workshop at the Federal Institute of Technology in Zurich, at which the tool I developed will be presented. In the long term, the Sciex Fellowship was a great opportunity for me to work with many interesting people and become familiar with their cutting-edge research. I had a lot of fruitful discussions with my colleagues. I hope that our friendship will lead to further collaboration in the future. I now feel that I have a good scientific basis for my further endeavours.



Picture 1 (from left): Philippe Block and Lukas Kurilla.



Impact of Student Mobility on Supranational Identities: A Case Study of Switzerland

<https://www.unilu.ch/news/forschung/news/detail/becoming-more-european-or-global-after-student-mobility/>



Code
14.032

Discipline
Legal and Social sciences, Economics

Duration
15.10.2014 - 14.10.2015

Country
Latvia

Sciex Fellow
Karina Oborune,
University of Latvia

Sciex Host Mentor
Andrea Schlenker,
University of Lucerne

Sciex Home Mentor
Janis Ikstens,
University of Latvia

Project description

"Did you feel more European or as a global citizen after your exchange abroad?" and "Was your host country located within or outside of Europe?" were key questions in the study, which showed that the destination country in student exchanges actually has a diverse effect on supranational identities. Students from 22 Swiss higher education institutions were surveyed by comparing mobile, non-mobile and potentially mobile students. We hypothesised that based on social communication and multicultural background theories within Europe student mobility would promote a global identity, whereas outside of Europe mobility would promote a distinctly European identity.

The results were in fact the reverse: student mobility inside Europe actually promoted a European identity, while student mobility outside of Europe promoted a global identity. Respondents more frequently reported new attitudes towards Europe the longer their mobility period lasted, but the more foreign languages respondents could speak fluently, the more likely they were to become a global citizen.

At a time when the financing for mobility appears under threat, the study underlines the strategic importance of mobility for the young generation.

Benefit for the Sciex Fellow

The Sciex project provided training in data analysis at a very advanced level, improved my ability to network across Europe and beyond and helped me develop presentation skills to communicate to a wider public, draft policy recommendations and cooperate with policy implementers, NGOs and think tanks. It provided an exceptional opportunity develop my career prospects including a research position at the University of Latvia, an opinion editorial position on education policies at the European think tank Politheor and application for a 2-year post-doc within the EU research programme Marie Curie at Aston University in the United Kingdom.

Continuation of the collaboration

The three Short-term Visits created prospects for further collaboration between the University of Latvia and the University of Lucerne, for the transfer of knowledge and skills, and to further widen the network. An ERASMUS agreement has been drawn up between the two universities, encouraging student exchanges at bachelor and master level. The collaboration has also established potential for guest lecturing by Home and Host Mentors, as well as other representatives of Home and Host Institutions with a background at the London School of Economics, the European University Institute and other institutions.



ERASMUS Annual Congress in Porto, Portugal, May 14-15, 2015 (from left): PhD Candidate Karina Oborune (Fellow), ERASMUS coordinators from Lithuania, Latvia and Italy.



Relationship between *Pichia pastoris* cell physiology and secretion of heterologous penicillin G acylase (PEGAS)

<https://www.zhaw.ch/en/research/personen-publikationen-projekte/detailansicht-projekt/projekt/2269/>

<https://www.zhaw.ch/de/lsfm/institute-zentren/icbt/bioprosesstechnologie/>

<https://youtu.be/nbjmNMj1qiA>



Code

14.176

Discipline

General Biology, Basic Biological Research, Engineering Sciences

Duration

01.10.2014 - 31.10.2015

Country

Czech Republic

Sciex Fellow

Martina Plačková,
The Czech Academy of Sciences

Sciex Host Mentor

Karin Kovar,
Zurich University of Applied Sciences ZHAW

Sciex Home Mentor

Pavel Kyslík,
The Czech Academy of Sciences

Project description

The PEGAS project aimed to develop a production process for penicillin G acylase (PGA) with the yeast *Pichia pastoris*.

PGA is an important industrial enzyme primarily used in industrial production of novel semi-synthetic β -lactam antibiotics, where it serves as an environmentally-friendly, cost-efficient, and sustainable alternative to the chemical method of antibiotic manufacturing. Using *P. pastoris* as a production organism is expected to have a substantial impact on manufacturing costs, due to its ability to secrete a high-quality product.

The experimental plan focused on the physiological characterisation of a newly constructed *P. pastoris* strain, in particular, on determining the optimum cultivation strategy to maximise the concentrations of PGA produced.

Collected data revealed that the overproduction of PGA significantly impairs the physiological behaviour of the cells and thus lowers the overall performance of the production system. The systematic information obtained is vital for the further development of the *Pichia*-production platform, as PGA also serves as a good model for the production of other complex enzymes of bacterial origin with this host organism.

Benefit for the Sciex Fellow

The Sciex internship was an important step forward in developing my skills and competences, and has provided me with considerable scientific gain. Adapting and succeeding in a new working environment in a foreign country is an awe-inspiring experience. My current professional life is a direct consequence of the Sciex Fellowship, as it has helped me to establish the focus of my further scientific interests. Furthermore, it has provided me with the opportunity to make valuable contacts, which in turn have resulted in my current internship at Graz University of Technology (A), PEGAS's indirect partner.

Continuation of the collaboration

The Sciex project has led to the strengthening of the cooperation between the two main parties, both of which worked on identifying the prospects of consecutive collaborative research and long-term funding, the key factors for sustainable cooperation over time.

As a result, PEGAS has revealed the importance of scientific dialogue and unlocked further opportunities for international cooperation within a wider project scope. Consequently, successful joint grant applications with partners from Austria, the Czech Republic, Denmark, Germany, Portugal and Switzerland have already been submitted within the scope of the LEIT scheme of Horizon2020.



Martina Plačková operating a high-performance bioreactor at the ZHAW Campus Grüental in Wädenswil.



Bioprocess Technology Team at the Institute of Chemistry and Biotechnology, ZHAW (October 2015).



Annexes

Sciex project «Tradition Dance Theatre Performance» of Aleksandra Dziuros from the Fryderyk Chopin University of Music (POL) who has spent six months at the Zurich University of Arts (CH).
©Christian Glaus

List of acronyms

Acronym

Meaning

NMS	New Member States
BGR	Bulgaria
CZE	Czech Republic
EST	Estonia
HUN	Hungary
LVA	Latvia
LTU	Lithuania
POL	Poland
ROU	Romania
SVK	Slovak Republic
SVN	Slovenia

Host Institutions

UNIBAS	University of Basel
UNIBE	University of Bern
UNIFR	University of Fribourg
UNIGE	University of Geneva
UNIL	University of Lausanne
UNILU	University of Lucerne
UNINE	University of Neuchatel
UNISG	University of St.Gallen
USI	Università della Svizzera Italiana
UZH	University of Zurich
IOR	Institute of Oncology Research
Swiss TPH	Swiss Tropical and Public Health Institute
FORS	Swiss Centre of Expertise in the Social Sciences
EPFL	Swiss Federal Institute of Lausanne (ETH Domain)
ETHZ	Swiss Federal Institute of Zurich (ETH Domain)
EAWAG	Swiss Federal Institute of Aquatic Science and Technology (ETH Domain)
EMPA	Swiss Federal Laboratories for Materials Science and Technology (ETH Domain)

PSI	Paul Scherrer Institute (ETH Domain)
WSL	Swiss Federal Institute for Forest, Snow and Landscape Research (ETH Domain)
BFH	Bern University of Applied Sciences
FHNW	University of Applied Sciences and Arts Northwestern Switzerland
FHO	University of Applied Sciences and Arts Eastern Switzerland
HES-SO	University of Applied Sciences and Arts Western Switzerland
HSLU	Lucerne University of Applied Sciences and Arts
SUPSI	University of Applied Sciences and Arts of Southern Switzerland
ZHAW	Zurich University of Applied Sciences
ZHdK	Zurich University of the Arts

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