Guide2015

National Centres of Competence in Research

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It can be ordered at the Swiss National Science Foundation (see address below).

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FNSNF
Swiss National Science Foundation

Content

National Centres of Competence in Research (NCCRs)

National Centres of Competence in Research (NCCRs)

In the year 2001 the Swiss National Science Foundation launched the National Centres of Competence in Research (NCCR). The main goal of the NCCRs is the promotion of scientific excellence in areas of major strategic importance for the future of Swiss research, economy and society. NCCRs are located at universities or other distinguished research institutions (home institutions). In addition to the research teams at the home institution, an NCCR sets up a network of other research teams across Switzerland. The maximum duration of an NCCR is 12 years. The three underlying principles of NCCRs are:

- Research: NCCRs carry out research of excellent quality, spanning basic research to applications. There is a number of individual projects doing the actual research work in each NCCR. The NCCR director ensures the coherence and integration of the individual projects.
- Knowledge and technology transfer: NCCRs develop links with the potential users of their results, and involve them in project planning from the outset.
- Training and promotion of women: NCCRs create the necessary structures and implement measures required to train young scientists (doctoral and postdoctoral students). Particular attention is paid to equal opportunities.

From a research policy point of view, NCCRs contribute to a better structuring of the Swiss research environment, and to optimised task assignment between research institutions. NCCRs are funded by the Swiss National Science Foundation (SNSF), participating institutions – in particular the home institutions – and third parties.

Since 1999 four NCCR calls have been published (see table on next page). The SNSF assesses the submitted NCCR proposals in a two-stage procedure (pre-proposals, full proposals). The scientific evaluation is executed by international reviewers. The structural aspects are assessed by Division IV of the Research Council. Based on these findings the Research Council selects a shortlist of the most promising proposals and submits it to the competent Federal Department where the finals selection is made based on science policy criteria.

In December 2013 eight new NCCRs of the 4th series have been approved by the Federal Councillor Johann Schneider-Ammann. They started their activities in 2014:

- Center for Bio-Inspired Stimuli-Responsive Materials (Weder Christoph, University of Fribourg)
- Digital Fabrication – Advanced Building Processes in Architecture (Kohler Matthias Daniel, ETHZ)
- Materials' Revolution: Computational Design and Discovery of Novel Materials (Marzari Nicola, EPFL)
- Molecular Systems Engineering (Meier Wolfgang, University of Basel / ETHZ)
- On the Move: The Migration-Mobility Nexus (D'Amato Gianni, University of Neuchâtel)
- PlanetS (Benz Willy, University of Bern / University of Geneva)
- RNA & Disease: Understanding the Role of RNA Biology in Disease Mechanisms (Mühlemann Oliver, University of Bern / ETHZ)
- The Mathematics of Physics (SwissMAP) (Smirnov Stanislav, University of Geneva / ETHZ)

The NCCRs
at a glance

Overview of NCCR Calls

	Submitted pre-proposals	Submitted full proposals	Approved projects	Years of operation
1st Call (1999)*	82	34	14	2001-2013
2nd Call (2003)	44	17	6	2005-2017
3rd Call (2008)	54	28	8	2010-2022
4th Call (2011)	63	23	8	2014-2026

* The NCCRs of the 1st Call are terminated. For more information see chapter "1st Call of NCCR's".

2nd Call of NCCRs

Short Name	NCCR-Director	Home Institution	Web Address
Affective Sciences	Prof. Sander David	University of Geneva	www.affective-sciences.org
Democracy	Prof. Kübler Daniel	University of Zurich	www.nccr-democracy.uzh.ch
Iconic Criticism	Prof. Ubl Ralph	University of Basel	www.eikones.ch
Mediality	Prof. Kiening Christian	University of Zurich	www.mediality.ch
SESAM*	Prof. Margraf Jürgen	University of Basel	
Trade Regulation	Prof. Elsig Manfred	University of Berne	www.nccr-trade.org

* Terminated in 2010

3rd Call of NCCRs

Short Name	NCCR-Director	Home Institution	Web Address
Chemical Biology	Prof. Riezman Howard	University of Geneva, EPF Lausanne	www.nccr-chembio.ch
Kidney.CH	Prof. Verrey François	University of Zurich	www.nccr-kidney.ch
LIVES	Prof. Spini Dario	University of Lausanne, University of Geneva	www.lives-nccr.ch
MUST	Prof. Keller Ursula	ETH Zurich, University of Berne	www.nccr-must.ch
QSIT	Prof. Ensslin Klaus	ETH Zurich, University of Basel	www.nccr-qsit.ethz.ch
Robotics	Prof. Floreano Dario	EPF Lausanne, ETH Zurich	www.nccr-robotics.ch
SYNAPSY	Prof. Magistretti Pierre	EPF Lausanne, Universities of Lausanne and Geneva	www.nccr-synapsy.ch
TransCure	Prof. Abriel Hugues	University of Berne	www.nccr-transcure.ch

4rd Call of NCCRs

Short Name	NCCR-Director	Home Institution	Web Address
Bio-Inspired Materials	Prof. Weder Christoph	University of Fribourg	www.bioinspired-materials.ch
Digital Fabrication	Prof. Kohler Matthias	ETH Zurich	www.dfab.ch
MARVEL	Prof. Marzari Nicola	EPF Lausanne	www.nccr-marvel.ch
MSE	Prof. Meier Wolfgang	University of Basel, ETH Zurich	www.nccr-mse.ch
On the Move	Prof. D'Amato Gianni	University of Neuchatel	www.nccr-onthemove.ch
PlanetS	Prof. Benz Willy	University of Berne, University of Geneva	www.nccr-planets.ch
RNA&disease	Prof. Mühlemann Olivier	University of Berne, ETH Zurich	www.nccr-rna-and-disease.ch
SwissMAP	Prof. Smirnov Stanislav	University of Geneva, ETH Zurich	www.nccr-swissmap.ch

Output in 2005 - 2014

(2nd and 3rd Call of NCCRs)

Type	2005 - 2014
Scientific papers	7493
Presentations at congresses and fairs	8191
Patents/licences	56
Start up companies[1]	18
Prototypes, demonstrators, processes	33
Cooperations with private sector	108
CTI projects[2]	14[3]

[1] Built up or encouraged by the NCCRs
[2] CTI: Innovation Promotion Agency of the Swiss Government funding cooperation projects with industry
[3] The total amount of the 14 projects is about CHF 8.5 Mio.

Total of funds 2nd Call

Funding source (CHF)	Phase 1	Phase 2	2013	2014	2015	2016	Total Phase 3	%
SNSF funding	40 300 000	41 790 000	8 266 535	7 746 000	6 661 000	5 611 000	28 284 535	36
Self-funding from Home institution[1]	12 440 810	19 163 626	4 464 229	4 229 091	4 170 040	4 157 516	17 020 876	21
Self-funding from project participants	22 471 911	29 664 229	9 020 248	7 404 101	7 228 295	7 216 292	30 868 936	39
Third-party funding	3 908 090	5 895 190	1 457 821	677 016	678 928	678 928	3 492 693	4
Total	79 120 811	96 513 045	23 208 833	20 056 208	18 738 263	17 663 736	79 667 040	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Total of funds 3rd Call

Funding source (CHF)	Phase 1	2014	2015	2016	2017	Total Phase 2	%
SNSF funding	124 618 100	35 451 464	34 661 000	32 533 000	25 377 000	128 022 464	42
Self-funding from Home institutions[1]	69 282 796	18 348 569	18 629 613	18 445 040	18 560 271	73 983 493	24
Self-funding from project participants	91 090 642	27 527 472	27 324 348	23 926 272	23 116 035	101 894 127	33
Third-party funding[2]	3 163 425	625 093	558 748	372 511	307 000	1 863 352	1
Total	288 154 963	81 952 598	81 173 709	75 276 823	67 360 306	305 763 436	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[2] Not included is CTI funding

Total of funds 4th Call

Funding source (CHF)	2014	2015	2016	2017	Total Phase 1	%
SNSF funding	29 980 907	30 724 000	31 226 000	30 984 000	122 914 907	51
Self-funding from Home institutions[1]	13 515 000	16 580 761	16 783 750	17 370 000	64 249 511	27
Self-funding from project participants	12 294 184	12 700 371	12 747 301	12 655 384	50 397 240	21
Third-party funding[2]	464 101	504 101	304 101	304 101	1 576 404	1
Total	56 254 192	60 509 233	61 061 152	61 313 485	239 138 062	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[2] Not included is CTI funding

Total of persons involved in the NCCRs in the last reporting period (12 months)

(2nd and 3rd Call of NCCRs)

Personnel	Total of Persons	Female	%	Male	%	Swiss	Other Nations
Management	62[1]	88	58	65	42	84	76
Master students	3	2	67	1	33	0	3
Doctoral students	424	205	48	219	52	173	263
Postdoctoral students	340	122	36	218	64	55	294
Research associates	94	51	54	43	46	49	50
Senior researchers[2]	475	117	25	358	75	235	265
Other staff	200	124	62	76	38	128	73
Total	1598	709	42	980	58	724	1'024

[1] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[2] Including leaders of the individual projects and other organisational units of the NCCRs

Emotion in Individual Behaviour and Social Processes
NCCR Affective Sciences

This interdisciplinary NCCR investigates a phenomenon playing a central role in human behaviour, decision-making and social interaction: emotion. In order to study emotion and other affective phenomena, we adopt the perspectives offered by different disciplines such as psychology, neuroscience, philosophy, literature, history, sociology, and economics. Three major research topics are addressed during the third phase: 1) how emotions are elicited 2) how emotions are regulated, and 3) what the role of emotion is in social interactions. In addition to basic research, special emphasis is placed on the "applied affective sciences" with transfer partners in the areas of health, work and organizations, economics, and the arts. The NCCR is also committed to training the new generations of affective scientists, for instance through our International Summer School in Affective Sciences.

Research

Work Package Appraisal / Values / Norms

Affective relevance: nature, determinants and effects
Sander D.

Emotion, attention and value
Deonna J., Teroni F.

Contempt in literature (Affective dynamics and aesthetic emotions)
Lombardo P.

Work Package Individual differences / Dispositions

Training self and emotion regulation: Neurobiological foundations and behavioral consequences
Fehr E.

Emotions at work and their relationship to well-being and performance
Tschan F., Elfering A., Semmer N.

Power and emotion recognition accuracy
Schmid Mast M., Sander D.

Influence of emotional relevance and sleep on learning and future decision making
Schwartz S.

Interests in the making
Clement F.

Work Package Systems / Dynamics

Computational modeling of appraisal theory of emotion
Scherer K.R.

From elicitation to emotional response: Neural mechanisms of patterning and system synchronization
Grandjean D.

Brain networks of emotions and their influence on cognitive processes
Vuilleumier P.

Emotional future thinking
Van der Linden M., D'Argembeau A.

Adaptive emotion awareness tools for computer-mediated interactions (EATMINT)
Betrancourt M., Pun T.

Research Foci

- **Affective computing**
- **Emotion, video games, and virtual reality**
- **The nature and consequences of gender differences**
- **Emotion in language and culture**
- **Moral emotions**
- **Emotion development in children**
- **Applied affective sciences**
- **Development of methods**

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Start of the NCCR

September 1, 2005

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www.affective-sciences.org

Key collaborations with third parties

Research Institutions

- Knight Lab, Cognitive Neuroscience Research Laboratory, Berkeley University
- Department of Classics, University of Edinburgh, GB
- Department of Comparative Literature, University of Bergen, NO
- Department of Music, University of Jyväskylä, FI
- Department of Philosophy, University of Montreal, CA
- Department of Psychology, University of Wisconsin, US
- Department of Philosophy, University of Manchester, GB
- Faculty of Humanities, University of Oslo
- School of Psychology, Cardiff University, GB
- Service de Neurologie, Université de Rennes, FR

Economy / Others

- Firmenich
- GfK Nürnberg e.V.
- Nantys, Bern
- Fondation Montreux Jazz 2
- Musée International de la Croix-Rouge et du Croissant-Rouge, Genève
- Haute Ecole de Musique de Genève
- Muséum d'histoire naturelle de Neuchâtel
- Musée de l'Elysée, Lausanne
- Théâtre du Grütli, Genève
- Swissnex San Francisco et Swissnex Boston

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Participating Institutions

Universität Bern (3 groups) | Université de Genève (13 groups) | Université de Neuchâtel (4 groups)
Universität Zürich (1 group) | Université de Liège (1 group) | Université de Lausanne (1 group)

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Funding

Funding source (CHF)	Year 9	Year 10	Year 11	Year 12	Total	%
SNSF funding[1]	1 910 435	1 900 000	1 700 000	1 500 000	7 010 435	23
Self-funding from home institution[2]	750 645	969 298	1 035 595	1 031 555	3 787 093	12
Self-funding from project participants	5 775 504	4 344 419	4 239 419	4 226 417	18 585 759	61
Third-party funding	941 202	0	0	0	941 202	4
Total	9 377 786	7 213 717	6 975 014	6 757 972	30 324 489	100

[1] SNSF funding incl. mobility grant in Year 9
[2] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	FR	DE	IT	BE	GB	Other Nations
Management	5.5[4]	9	56	7	44	6	2	2	4	0	0	2
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	54	39	72	15	28	25	9	3	2	1	3	12
Postdoctoral students	51	28	55	23	45	6	9	7	10	1	1	17
Research associates	0	0	0	0	0	0	0	0	0	0	0	0
Senior researchers[5]	48	20	42	28	58	19	9	7	5	5	2	3
Other staff	42	21	50	21	50	26	6	3	1	1	0	5
Total	200.5	117	55	94	45	82	35	22	22	8	6	39

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 798 Peer-reviewed | 9 Not peer-reviewed | 316 Anthology articles | 38 Books | 7 Reports	1168
Presentations at congresses ›	1418
Cooperations › 18 Programmes | 265 Research institutions | 11 Private sector | 32 Other	326
Transfer activities › 0 Patents | 0 Licenses | 0 Start-ups[7] | 0 Prototypes/processes | 0 CTI-projects[8]	0

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Newsletter: www.affective-sciences.org/newsletter (appears twice a year: 17 previous issues).
Leaflet: www.affective-sciences.org/content/centre-nccr-affective-sciences
Media coverage: www.affective-sciences.org/media-coverage
Twitter account: NCCRAffectiveScience

Using Concepts from Nature to Create 'Smart' Materials

NCCR Bio-Inspired Materials

The NCCR "Bio-Inspired Materials – Using Concepts from Nature to Create 'Smart' Materials" aims to pool the expertise of its members in the fields of chemistry, physics, materials science, biology and medicine in order to study smart materials inspired by living things and explore their use in potential applications. This involves devising new design strategies and rules to create and assemble macromolecules and nanoparticles into ordered structures to produce smart materials with the desired properties. The NCCR's research activities are organized in three interconnected, interdisciplinary modules: adaptive materials responding to mechanical stimuli, adaptive materials created through self-assembly, and interactions of adaptive materials with living cells.

Home Institution

University of Fribourg

Start of the NCCR

June 1, 2014

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Research

Module 1: Mechanically responsive materials

Functional polymers through mechanochemistry
Weder Ch. and Fromm K.

Probing force response of single macromolecules with atomic force microscopy
Borkovec M.

Self-assembled biomimetic nanostructures based on stimuli-responsive block copolymers
Bruns N.

Polymers with molecular auxetic behavior
Kilbinger A.

Mechanically tunable materials through stimuli-responsive capsules
Studart A.

Module 2: Responsive materials through self-assembly

Thermal response of polymeric building blocks for smart materials
Scheffold F.

Confinement induced stable liquid phases mimicking the behavior in cell membrane lipid bilayers
Brader J.

Ultrafast stimuli-responsive colour-changing hydrogels
Lattuada M.

Multi-responsive photonic materials as tunable filters, sensors and switches
Scheffold F. and Steiner U.

Module 3: Interactions of responsive materials with living cells

Sensoresponsive nanoelements to detect and eliminate individual cancer cells
Rüegg C.

Evolving nanoparticles
Stellacci F.

Magneto-responsive cell culture substrates that can be modulated in situ under conditions compatible with live cells
Fink A. and Rothen-Rutishauser B.

Intelligent nanomaterials to reveal and control their behavior in complex media, at the biointerface and in cells
Rothen-Rutishauser B. and Fink A.

Heads of Research Groups

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Participating Institutions

Universität Freiburg (12 groups) | Université de Genève (1 group) | EPF Lausanne (1 group) | ETH Zürich (1 group)

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- University of Bayreuth, DE
- Bulgarian Academy of Sciences, BG
- University of California, Irvine, US
- University of California, Los Angeles, US
- Philipps Universität Marburg, DE
- University of Bordeaux, FR

Others

- BASF Schweiz AG, CH
- Collano Adhesives AG, CH
- Firmenich SA, CH
- Ivoclar Vivadent AG, LI
- Mathys European Orthopaedics Ltd., CH
- UCB Farchim SA, CH
- LS Instruments AG, CH
- regenHU Ltd., CH

Using Concepts from Nature to Create "Smart" Materials
NCCR Bio-Inspired Materials

Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding	3 000 000	3 000 000	3 000 000	3 000 000	12 000 000	45
Self-funding from home institution[1]	1 494 000	2 598 511	1 899 000	1 902 000	7 893 511	30
Self-funding from project participants	1 434 199	1 547 203	1 547 207	1 434 191	5 962 800	22
Third-party funding	160 000	200 000	200 000	200 000	760 000	3
Total	6 088 199	7 345 714	6 646 207	6 536 191	26 616 311	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

Visualisation and Control of Biological Processes Using Chemistry

NCCR Chemical Biology

The mission of the NCCR "Chemical Biology" is to use chemistry tools to obtain a better understanding of life at the molecular level. Until now, few technologies could characterise in detail the countless biochemical activities that constitute a living cell. In the NCCR chemists, biochemists, physicists and cell biologists develop innovative techniques based on small molecules and proteins to obtain new information about cellular processes and control them in vivo. The new tools will be applicable to various biological phenomena like visualising the activity of selected proteins during cell division and investigating how membranes control the activity of proteins in them. The NCCR is also engaged in establishing a platform for chemical screening aimed at developing a new generation of molecules with biological effects. The development of new technologies and identification of novel molecules has already led to the creation of several start-ups.

Research

Bioorthogonal chemistry

Winssinger N., Waser J, van der Goot G., Cramer N., Gademann K., Heinis Ch., Dubikovskaya E.

Chemical systems biology

Loewith R., Adibekian A., Riezman H., Gruenberg J., Johnsson K., Kaksonen M.

Protein-based tools for vizualization and manipulation of biochemical activities

Johnsson K., Hantschel O., Gönczy P., Fierz B., Heinis Ch.

Sensors and assays to study cell mechanics and endosomal motility

Gonzalez-Gaitan M., Roux A., Manley S., Riezman H., Johnsson K.

Cellular entry and novel membrane probes

Matile S., Riezman H., Marcos Gonzalez-Gaitan M., Roux A., Sugihara K., Zumbühl A., Loewith R.

Taking advantage of ACCESS

Turcatti G.

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Visualisation and Control of Biological Processes Using Chemistry
NCCR Chemical Biology

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- Division of Pediatric Oncology, University Children's hospital Zürich, Zürich, CH
- Institute of Biochemistry, ETHZ, Zurich, CH
- SIB (Swiss Institute of Bioinformatics), CH
- SystemsX
- Telethon Institute of Genetics and Medicin, Bern, CH
- INSERM, Université Aix-Marseille, FR
- Nestlé Research Center, Lausanne CH
- NCBS Bangalore, India
- Université Paris-Sud, Orsay, FR
- Laboratory for Biological Geochemistry, EPFL CH

Economy / Others

- Inflamalps SA, Monthey, CH
- Lyncée Tech SA, Lausanne, CH
- Novartis Stiftung, Basel, CH
- Novartis Boston & Novartis Basel, CH
- Geneva Business School
- Pre-Seed Workshop

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Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding	4 160 000	4 150 000	3 660 000	2 660 000	14 630 000	54
Self-funding from home institution[1]	958 220	1 103 220	1 103 220	1 103 220	4 267 880	16
Self-funding from EPF Lausanne	1 500 000	1 500 000	1 500 000	1 500 000	6 000 000	22
Self-funding from project participants	605 000	605 000	605 000	605 000	2 420 000	8
Third-party funding[2]	0	0	0	0	0	0
Total	7 223 220	7 358 220	6 868 220	5 868 220	27 317 880	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[2] Not included is CTI funding. Since the start of the NCCR 4 projects have been funded by CTI at a total amount of 1 527 610 CHF (cf. table Output).

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	FR	DE	IT	ES	CA	Other Nations
Management	3.7[4]	6	60	4	40	3	3	1	1	0	1	2
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	37	14	38	23	62	9	4	4	4	3	0	13
Postdoctoral students	32	12	38	20	63	2	6	3	5	3	3	10
Research associates	11	3	27	8	73	2	7	1	0	1	0	0
Senior researchers[5]	25	5	20	20	80	9	3	5	1	1	1	6
Other staff	9	8	89	1	11	6	1	0	1	0	0	1
Total	117.7	48	39	76	61	31	24	14	12	8	5	32

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 197 Peer-reviewed | 14 Not peer-reviewed | 6 Anthology articles | 5 Books | 0 Reports	222
Presentations at congresses ›	310
Cooperations › 9 Programmes | 18 Research institutions | 12 Private sector | 2 Other	41
Transfer activities › 9 Patents | 6 Licenses | 6 Start-ups[7] | 0 Prototypes/processes | 4 CTI-projects[8]	25

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

«Chimiscope» une plateforme attrayante et pédagogique de découverte du monde des molécules: www.chimiscope.ch
Leaflet “NCCR Chemical Biology” (d/f/e)
Brochure on ACCESS: Academic Chemical Screening Platform for Switzerland: www.nccr-chembio.ch/bsfepflch/
Master in Chemical Biology (UniGE-EPFL): nccr-chembio.ch/new-masters/
Outreach efforts: Pre-Seed Workshop: nccr-chembio.ch/outreach/knowledge-and-technology-transfer/
NCCR Lecture Series, Childcare subsidies, Mini-Symposium, Workshop on career issues, International Symposium, Annual Retreat, Scientific seminars

Challenges to Democracy in the 21st Century
NCCR Democracy

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Despite all its shortcomings, democracy is the form of government best suited to managing the way in which we live together. Democracy can certainly be improved. For this reason, and due to new developments, we continuously need to reflect upon, and re-negotiate the rules of democracy. The NCCR Democracy examines two current trends which are fundamentally transforming democracy: globalization and the growing role of the media in politics. NCCR researchers have been working together on over 50 projects in order to understand which challenges and new opportunities these two trends entail for democracy. The NCCR focuses on two topics: First, the democratic quality of international, transnational- and subnational bodies, which increasingly take up decision-making authority at the detriment of elected national authorities. Second, the growing populism in European democracies.

Research

Module "Varieties of democratic governance beyond the state: institutions, communication, and perceptions"

Lavenex S., Kübler D.

Political behavior and attitudes in times of new regionalism and mediatization
Kübler D., Marcinkowski F.

Internationalization and representative democracy
Cheneval F., Schimmelfennig F.

Democratic quality and legitimacy in international environmental governance
Bernauer T., Koubi V.

Democratic governance in and through transgovernmental networks
Buess M., Freyburg T., Lavenex S.

The democratic accountability of transnational private governance
Gilardi F., Maggetti M., Papadopoulos Y.

Type II governance in public communication: computer based media content analysis
Schneider G., Wüest B.

Deliberation, legitimacy and epistemic quality in multilevel governance systems
Bächtiger A., Steenbergen M.

Module "The appeal of populist ideas and messages"

Esser F., Wirth W.

Populism and the news media – a comparative and multi-issue approach
Esser F.

A look into the black box – how populist communication strategies affect citizens' attitudes
Schemer C., Wirth W.

Populist strategies in current election campaigns
Bernhard L., Kriesi H., Steenbergen M.

Populism and national political cultures
Caramani D.

Democracy Barometer – established democracies in times of crises, and processes of democratization
Bochsler D., Merkel W.

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Universität Zürich (11 groups) | Universität Mainz (1 group) | ETH Zürich (2 groups)
Universität Bern (1 group) | Fachhochschule Nordwestschweiz (1 group)
European University Institute Florence (1 group) | Westfälische Wilhelms-Universität Münster (1 group)
Wissensschaftszentrum Berlin für Sozialforschung WZB (1 group) | University of Warwick (1 group)

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- Institut für Sozialwissenschaften, Humboldt-Universität zu Berlin, DE
- Institute for European Integration Research, Austrian Academy of Science, Vienna, AT
- Institute of Communication Studies, Leeds University, GB
- Institute of Mass Communication and Media Research, Free University Berlin, DE
- Institute of Political Science, University of Munich, DE
- Laboratoire Communication et politique, Centre National de la Recherche Scientifique, Paris, FR
- Political Science Department, University of Mannheim, DE
- Political Science Department, University of Oslo, NO
- Politics and International Studies, Open University, Milton Keynes, GB
- Zentrum für Sozialpolitik, Universität Bremen, DE

Economy / Others

- Bertelsmann Transformation Index, Bertelsmann Stiftung, Gütersloh, DE
- Politools, Bern, CH

Funding

Funding source (CHF)	Year 9	Year 10	Year 11	Year 12	Total	%
SNSF funding	1 350 000	1 300 000	1 300 000	1 300 000	5 250 000	46
Self-funding from home institution[1]	655 735	927 990	930 642	797 158	3 311 525	29
Self-funding from project participants	849 765	560 718	563 876	564 875	2 539 234	22
Third-party funding[2]	77 891	57 016	58 928	58 928	252 763	3
Total	2 933 391	2 845 724	2 853 446	2 720 961	11 353 522	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[2] Not included is CTI funding. Since the start of the NCCR 1 project has been funded by CTI at a total amount of 212 415 CHF (cf. table Output).

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	DE	FR	GR	IT	US	Other Nations
Management	3.6[4]	5	45	6	55	5	6	0	0	0	0	0
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	22	11	50	11	50	13	5	0	0	1	0	3
Postdoctoral students	6	2	33	4	67	1	5	0	0	0	0	0
Research associates	4	1	25	3	75	3	1	0	0	0	0	0
Senior researchers[5]	29	7	24	22	76	16	11	2	2	0	1	3
Other staff	13	6	46	7	54	6	5	0	0	1	1	0
Total	77.6	32	38	53	62	44	33	2	2	2	2	6

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 219 Peer-reviewed | 66 Not peer-reviewed | 189 Anthology articles | 45 Books | 51 Reports	570
Presentations at congresses ›	691
Cooperations › 17 Programmes | 72 Research institutions | 7 Private sector | 5 Other	101
Transfer activities › 0 Patents | 0 Licenses | 1 Start-ups[7] | 0 Prototypes/processes | 1 CTI-projects[8]	2

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Newsletter: www.nccr-democracy.uzh.ch/news_events/Newsletter (12 issues)
Facebook: www.facebook.com/nccrdemocracy
Visual Reader: http://www.demokratiebuch.com/

Innovative Building Processes in Architecture
NCCR Digital Fabrication

The "NCCR Digital Fabrication – Innovative Building Processes in Architecture" aims to secure a leading position for Switzerland in this new and highly interesting sector, which is fast becoming a core discipline of architecture. Through a multidisciplinary approach the disciplines of architecture, engineering, robotics, and material and computer sciences are brought together in an ambitious partnership to establish digital technology as an essential part of future building processes. This new approach combines digitally mediated architectural design with robotic construction technologies to augment contemporary construction processes. The benefits of digital construction are evident: efficient use of production resources, material-specific concepts and durability, thanks to the seamless integration of design and fabrication.

Research

Computational design and process innovation

Computational design environment
Gramazio F., Kohler M.

Building process innovation
Menz S.

Material and constructive systems

Structurally graded assemblies
Weinand Y.

Advanced material design and processes
Flatt R.

Robotic control and fabrication

On-site robotic construction
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Bespoke prefabrication
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Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding	2 800 000	3 500 000	3 700 000	3 400 000	13 400 000	59
Self-funding from home institution[1]	1 999 000	2 398 250	2 392 750	2 370 000	9 160 000	41
Self-funding from project participants	0	0	0	0	0	0
Third-party funding	0	0	0	0	0	0
Total	4 799 000	5 898 250	6 092 750	5 770 000	22 560 000	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

The Power and Meaning of Images
NCCR Iconic Criticism

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Images ignite debates that are central to the way in which our society describes itself. "The ubiquity of images," "the flood of digital images," "spectacle," "images wars," but also positively connoted catchphrases such as "communicating through images," "epistemic images" ensure discussion and are treated as key terms of our era. They reflect both the hopes as well as the fears that concern the futures of education, of knowledge, of literate culture, of the arts, and political and economic decision-making processes. The NCCR gathers ten disciplines in total, from among the Humanities and social sciences. It investigates iconic phenomena from such diverse areas as the arts, sciences, economics, city planning, philosophy, and the history of language and writing.

Research

Materiality and Semantics of Writing. Reduced and enhanced Iconicity, the Plasticity of Complex Writing Systems
Behr W., Loprieno A.

Revealing and Concealing. Methods of the Image in the Premodern Period
Schellewald B.

Form and Image in Modernity
Ubl R., Klammer M.

Visual Semantics and Visual Observation: Image and Form
Bohn C.

Augenarbeit - Visual Performance and Visual Design
Hagner M.

The Visuality of Baroque Opera. Historical Perspectives and Contemporary Performance Practice
Gess N.

Music - Gesture - Image
Schmidt M.

Module Cities on the Move: Images of the Urban in the Modern Era
Ursprung Ph.

eikones Graduate School
Ubl R., Klammer M.

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Klammer Markus, Prof.	Schaulager-Professor für Kunsttheorie, Kunsthistorisches Seminar, Universität Basel
Loprieno Antonio, Prof.	Ägyptologie, Universität Basel
Schellewald Barbara, Prof.	Kunsthistorisches Seminar, Universität Basel
Schmidt Matthias, Prof.	Musikwissenschaftliches Seminar, Universität Basel
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Participating Institutions

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ETH Zürich (2 groups) | Schaulager Basel (2 groups)

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Key collaborations with third parties

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- Department of Art History, Yale University, New Haven, US
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- Department of German Studies, University of Chicago, US
- Exzellenzcluster «Bild, Wissen, Gestaltung. Ein interdisziplinäres Labor», Humboldt-University of Berlin, DE
- History of Art Department, UC Berkeley, US
- History of Art Department, University College London, UK
- ICAM Lüneburg, Institut für Kultur und Ästhetik Digitaler Medien, DE
- Institut für Kunstgeschichte, Universität Wien, AT
- International Doctoral Program MIMESIS, LMU München, DE
- Internationales Kolleg für Kulturtechnikforschung und Medienphilosophie, IKKM, Weimar, DE

Funding

Funding source (CHF)	Year 9	Year 10	Year 11	Year 12	Total	%
SNSF funding	1 610 000	1 270 000	1 185 000	1 185 000	5 250 000	29
Self-funding from home institution[1]	1 498 695	955 000	880 000	1 005 000	4 338 695	24
Self-funding from project participants	1 031 554	1 675 000	1 675 000	1 675 000	6 056 554	34
Third-party funding	438 728	620 000	620 000	620 000	2 298 728	13
Total	4 578 977	4 520 000	4 360 000	4 485 000	17 943 977	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[2]	Total of Persons	Female	%	Male	%	CH	DE	IT	AT	US	PL	Other Nations
Management	6.1[3]	4	31	9	69	6	3	1	1	1	1	1
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	21	12	57	9	43	10	7	1	3	0	1	0
Postdoctoral students	15	10	67	5	33	2	8	0	4	2	0	1
Research associates	5	1	0	4	0	1	4	1	0	0	0	0
Senior researchers[4]	17	5	29	12	71	2	9	3	2	3	0	0
Other staff	0	0	0	0	0	0	0	0	0	0	0	0
Total	64.1	32	45	39	55	21	31	6	10	6	2	2

[2] Persons involved in the NCCR in the last reporting period (12 months)
[3] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[4] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[5]	Totals
Publications › 124 Peer-reviewed | 379 Not peer-reviewed | 972 Anthology articles | 269 Books | 2 Reports	1746
Presentations at congresses ›	1170
Cooperations › 12 Programmes | 151 Research institutions | 0 Private sector | 8 Other	171
Transfer activities › 0 Patents | 0 Licenses | 0 Start-ups[6] | 0 Prototypes/processes | 0 CTI-projects[7]	0

[5] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[6] Start-up companies that have been built up or were considerably supported by NCCRs.
[7] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Electronic newsletter: eikones.ch/nc/neues/newsletter.html
Brochure “NFS Bildkritik – Macht und Bedeutung der Bilder 2012/2013“: eikones.ch/neues/aktuelles.html
Online-Journal „Rheinsprung 11“: rheinsprung11.unibas.ch
Book series „eikones“, Wilhelm Fink Verlag, München: eikones.ch/publikationen/buchreihe.html

International Trade Regulation- From Fragmentation to Coherence

NCCR Trade Regulation

NCCR "Trade Regulation" aims to clarify how the world trading system functions and to explore the drivers of fragmentation and coherence. Implications of the debt crisis, the ascendance of emerging economies and a proliferation of preferential trade agreements serve as the backdrop for this NCCR's third research phase. While multilateralism remains crucial to bringing about greater coherence among policy areas, fragmentation is increasing in a more complex regulatory environment. This NCCR aims to offer policy recommendations based on the disciplines of law, economics and political science through its six thematic research areas: trade governance; new preferentialism in trade; innovation and creativity in international trade; trade, development and migration; trade and climate change; and impact assessment in international trade regulation.

Research

Work Package 1
Trade Governance

Bernauer T.

Cluster 1.1, Public Attitudes vis-à-vis International Trade Liberalization
Bernauer T., Spilker G.

Work Package 2
New Preferentialism in Trade

Elsig M.

Cluster 2.1, Design of Trade Agreements
Dür A., Elsig M.

Cluster 2.2, Preferential Trade Agreements: Platforms of Innovation, Diffusion and Change
Elsig M.

Work Package 3
Innovation and Creativity in International Trade

Cottier T.

Cluster 3.1, Competitiveness, Intellectual Property and Governmental Procurement: Towards Graduation in Trade Regulation
Cottier T.

Cluster 3.2, Governing New Technologies
Burri M.

Work Package 4
Trade, Development and Migration

Lavanex S.

Cluster 4.1, Migration Law, Policy and Economics in Regional Integration Contexts
Lavanex S.

Work Package 5
Trade and Climate Change

Cottier T.

Cluster 5.1, Climate Governance and Trade
de Sépibus J.

Cluster 5.2, The Challenges of Mitigation and Adaptation
Francois J.

Cluster 5.3, Energy, Trade and Climate Change
Cottier T.

Work Package 6
Impact Assessment in International Trade Regulation

Cadot O.

Cluster 6.1, Trade Adjustment, Labour and Productivity
Brülhart M.

Cluster 6.2, Impact Evaluation of Trade Policies
Shingal A.

Home Institution

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- Institut für Europa- und Wirtschaftsvölkerrecht, University of Bern, CH
- Institute of International Economic Law, Georgetown University, US
- International Research Institute for Climate and Society, Columbia University, US
- Department of International Relations, London School of Economics, GB
- Oxford Institute for Energy Studies, University of Oxford, UK
- Department of Politics, Princeton University, US
- Department of Political Science and Sociology, Salzburg University, AT

Economy / Others

- Asian Development Bank
- Energy Charter Secretariat, Brussels, BE
- EUResearch, Bern, CH
- International Center for Trade and Sustainable Development, Geneva CH
- International Renewable Energy Agency (IRENA), Bonn, DE
- State Secretariat for Economic Affairs, Bern, CH
- Swiss Federal Institute of Intellectual Property, CH
- UNCTAD, Geneva, CH
- World Bank, Washington D.C., US
- World Trade Organization, Geneva, CH

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ETH Zürich (1 group) | Universität Salzburg (2 groups) | Université de Genève (1 group)

Evaluation and Monitoring by the Swiss National Science Foundation (SNSF)

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Funding

Funding source (CHF)	Year 9	Year 10	Year 11	Year 12	Total	%
SNSF funding[1]	2 308 100	2 100 000	1 300 000	866 000	6 574 100	66
Self-funding from home institution[2]	781 876	713 190	713 190	713 190	2 921 446	29
Self-funding from project participants	431 903	73 964	0	0	505 867	5
Third-party funding	0	0	0	0	0	0
Total	3 521 879	2 887 154	2 013 190	1 579 190	10 001 413	100

[1] SNSF funding incl. mobility grant in Year 9
[2] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	IT	CA	DE	GB	AT	Other Nations
Management	6.2[4]	11	65	6	35	10	0	2	2	2	1	1
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	8	4	50	4	50	4	0	0	1	0	0	3
Postdoctoral students	13	10	77	3	23	4	4	0	0	0	1	5
Research associates	3	2	67	1	33	1	0	0	0	0	0	2
Senior researchers[5]	32	13	41	19	59	15	3	2	2	0	2	12
Other staff	6	1	17	5	83	0	0	1	0	2	0	3
Total	68.2	41	52	38	48	34	7	5	5	4	4	26

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 258 Peer-reviewed | 390 Not peer-reviewed | 101 Anthology articles | 122 Books | 51 Reports	922
Presentations at congresses ›	483
Cooperations › 14 Programmes | 179 Research institutions | 33 Private sector | 105 Other	331
Transfer activities › 0 Patents | 0 Licenses | 0 Start-ups[7] | 0 Prototypes/processes | 0 CTI-projects[8]	0

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Brochures: World Trade Institute / NCCR Trade Regulation
- Work Package Backgrounders
- Work Package Videos
- Overall NCCR Trade Regulation Video

Quarterly E-Newsletter
SECO / WTI Academic Cooperation Project Blog http://wti-partners.org/
DESTA Website www.designoftradeagreements.org
Key Events
- World Trade Forum 2015

Kidney Control of Homeostasis
NCCR Kidney.CH

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Keeping the inner body environment in a homeostatic balance is essential for proper body function and thus for healthy life. The NCCR "Kidney.CH" investigates the central role that kidneys play in controlling this vital equilibrium. It integrates leading Swiss specialist in experimental and clinical nephrology from all Swiss Medical Universities and corresponding hospitals. Chronic Kidney Disease (CKD) has increased dramatically in recent years leading worldwide to an estimated 850 000 deaths every year. Patients with CKD are further at high risk for other diseases such as hypertension, atherosclerosis and osteoporosis to name just a few. The goal of Kidney.CH is to advance knowledge in order to provide a scientific basis for the potential development of novel preventive, diagnostic and therapeutic approaches.

Research

Work package 1: Oxygen

Oxygen sensing and erythropoietin regulation
Wenger R., de Seigneux S.

Project 1: O2 Computing and visualization
Kurtcuoglu V., Hall A., Frew I., Wenger R., de Seigneux S., Loffing J.

Project 2: Epo Regulation
Wenger R., Lundby C., de Seigneux S., Frew I., Forssmann W.-G., Loffing J., Bochud M., Devuyst O.

Project 3: Nephron loss and hypoxia sensing
de Seigneux S., Hall A., Frew I., Kurtcuoglu V., Lundby C., Wenger R., Féraille E.

Work package 2: Dietary Impact

Modulation of CKD progression by dietary components
Verrey F., Krapf R.

Project 1: Phosphate toxicity in humans
Reto Krapf and members of the clinical study group
Wagner C., Pasch A.

Project 2: Impact of dietary salt
Féraille E., Wenger R., Frew I., Loffing J., de Seigneux S., Montani J.-P., Yang Z., Krapf R.

Project 3: Dietary amino acids
Verrey F., Montani J.-P., Yang Z.

Work package 3: Ion Balance

Control of potassium and phosphate homeostasis
Loffing J., Wagner C.

Project 1: Sensors for K^+ and Pi
Loffing J., Staub O., Wagner C., Hummler E., Hall A., Forssmann W.-G.

Project 2: Signals of K^+ adaption
Staub O., Loffing J., Hummler E.

Project 3: Pi-adaption
Wagner C., Staub O., Hall A., Devuyst O., Bochud M. (Population genetics platform), Swiss Kidney Stone Cohort

Project 4: K^+ and Pi Homeostasis and Corticosteroids
Hummler E., Wagner C., Loffing J.

Work package 4: Calcification

Kidney function and biomineralization
Huynh-Do U., Devuyst O.

Project 1: Intrarenal calcification
Bonny O., Devuyst O., Huynh-Do U., Swiss Kidney Stone Cohort

Project 2: TAL and uromodulin
Devuyst O., Bonny O., Huynh-Do U., Odermatt A., CoLaus & SKIPOGH cohorts

Project 3: Fetuin-A and the kidney
Huynh-Do U., Bonny O., Devuyst O., Odermatt A., Pasch A.
de Seigneux S., Bochud M. , Swiss Kidney Stone Cohort

Project 4: Biology of calciprotein particles
Pasch A., Odermatt A., Huynh-Do U., Devuyst O., Krapf R., Wagner C.

Technology Platforms & Reference Centres

Imaging & Microscopy
Loffing J., Hall A.

Rodent Transgenesis
Hummler E.

Rodent Phenotyping
Wagner C.

Regulatory peptides
Forssmann. W.-G.

Computational Modeling
Kurtcuoglu. V.

Population genetics
Bochud M. and Devuyst O.

Kidney Pathology
Wild P.

Clinical Study Group Swiss Kidney Stone Cohort
Bonny O. and Wagner C.

Programmes

International Fellowship Program on Integrative Kidney Physiology and Pathophysiology (IKPP)
Huynh-Do U.

E-Learning Cours in Basics in Nephrology
Rossier B.

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Université de Lausanne (4 groups)| Universität Zürich (11 groups)| Universitätsspital Bern (2 groups)
Klinik St. Anna Luzern (1 group)

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- Institute of molecular bioscience, University of Tokyo, JP
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- Internal Medicine, National Center of Integrative Biomedical Informatics, Ann Arbor, US
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- Mineral metabolism clinic, Ut Southwestern Medical Centre, Dallas, TX, US
- NHLBI, Framingham Hear Study, US
- Oncology - Medical Imaging, University Hospital Zurich, CH

Economy / Others

- Insphero AG, Zurich, CH
- Novartis, Basel, CH
- Calcisco AG, Bern, CH

Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding	4 502 000	4 402 000	4 402 000	3 224 000	16 530 000	81
Self-funding from home institution[1]	975 000	975 000	975 000	975 000	3 900 000	19
Self-funding from project participants	0	0	0	0	0	0
Third-party funding[2]	0	0	0	0	0	0
Total	5 477 000	5 377 000	5 377 000	4 199 000	20 430 000	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[2] Not included is CTI funding. Since the start of the NCCR 1 project has been funded by CTI at a total amount of 200 000 CHF (cf. table Output).

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	DE	FR	IN	GB	IT	Other Nations
Management	2.7[4]	5	45	6	55	5	3	1	1	0	0	1
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	15	8	62	5	38	3	2	0	1	0	3	4
Postdoctoral students	25	11	38	18	62	7	2	1	2	3	1	13
Research associates	4	2	67	1	33	0	1	0	1	0	0	1
Senior researchers[5]	35	5	14	31	86	22	7	3	0	1	0	3
Other staff	8	10	83	2	17	8	2	1	0	0	0	1
Total	89.7	41	39	63	61	45	17	6	5	4	4	23

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 96 Peer-reviewed | 12 Not peer-reviewed | 0 Anthology articles | 2 Books | 0 Reports	110
Presentations at congresses ›	89
Cooperations › 1 Programmes | 48 Research institutions | 11 Private sector | 1 Other	61
Transfer activities › 0 Patents | 0 Licenses | 1 Start-ups[7] | 0 Prototypes/processes | 1 CTI-projects[8]	2

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Newsletter: www.nccr-kidney.ch/index.php?nav=60&scx=0&scy=0
Press releases: www.nccr-kidney.ch/index.php?nav=48&scx=0&scy=0

Overcoming vulnerability: life course perspectives
NCCR LIVES

The NCCR "LIVES" conducts longitudinal studies and develops theories to understand the life-long processes that lead to the many forms of vulnerability in adult life. We analyse factors and processes that make individuals differentially vulnerable to sources of stress, the life-long consequences of these factors and processes. Moreover we analyse resources and actions undertaken by individuals or by their environment to compensate or overcome vulnerability. Life trajectories of the overall population confronted with the "new social risks" (growing instability of personal relations, labour market uncertainty, etc.) and of population groups particularly at risk (e.g. people with low economic resources, or facing health problems) are scrutinized in a comparative, longitudinal, and interdisciplinary perspective. Our results will provide stimulus for action on the level of social policy.

Research

Trajectories within contexts
Spini D., Bühlmann F., Albanese E., Bernardi L., Heeb J.-L., Staerklé C.

Education and employment
Lalive R., Bonoli G., Müller T., Oesch D., Pellizzari M., Ramirez J.

Welfare boundaries
Bonvin J.-M., Bühlmann F., Dittmann J., Drilling M., Knoepfel, C., Tabin J.-P.

Gender and occupations
Le Feuvre N., Davoine E., Fassa Recrosio F., Lépinard E., Surdez, M.

Career paths
Rossier J., Freund A., Krings F., Maggiori C., Ruch W.

Family configurations
Widmer E., Bernardi L., Burton-Jeangros C., Joye D., Modak M., Rossier C., Sauvain Dugerdil C.

Relationships in later life
Perrig-Chiello P., Jopp D., Spini D., Znoj H.

Old age
Oris M., Kliegel M., Bickel J.-F., Bolzman C., Desrichard O., Joye D., Maggiori C., Ritschard G, Widmer E.

Measuring vulnerability
Ritschard G., Berchtold A., Joye D., Oris M., Roberts C.

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- Center for Research on Inequalities and the Life Course, Yale University, New Haven, US
- Center on Ageing and the Life Course, Purdue University, West Lafayette, US
- Centre for Analysis of Social Exclusion, London School of Economics and Political Science, GB
- Centre for Population, Aging and Health, University of Western Ontario, London, CA
- Department of Sociology, Case Western Reserve University, Cleveland, US
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- Hallie Ford Center for Healthy Children and Families, Oregon State University, Corvallis, US
- International Centre for Lifecourse Studies in Society and Health, University College London, GB
- Mobilité, logement et entourage, Institut national d'études démographiques, Paris, FR

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- Bureau fédéral de l'égalité entre femmes et hommes, Berne; Bureaux de l'égalité de l'Université de Lausanne et de l'Université de Genève, CH
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Université de Genève (12 groups) | Universität Zürich (2 groups) | Hôpitaux Universitaires de Genève (1 group)
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Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding[1]	4 408 795	4 300 000	3 507 000	2 328 000	14 543 795	32
Self-funding from home institution[2]	1 524 019	1 588 522	1 835 699	2 129 630	7 077 870	15
Self-funding from University of Geneva	1 851 645	1 717 986	1 653 436	1 672 236	6 895 303	15
Self-funding from project participants	4 074 780	3 963 920	3 976 880	3 933 680	15 949 260	35
Third-party funding	525 093	458 748	272 511	207 000	1 463 352	3
Total	12 384 332	12 029 176	11 245 526	10 270 546	45 929 580	100

[1] SNSF funding incl 120% support grant in year 5
[2] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	IT	FR	DE	PT	ES	Other Nations
Management	7.4[3]	14	78	4	22	15	0	1	0	0	0	2
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	61	44	72	17	28	37	4	5	4	3	1	9
Postdoctoral students	14	8	57	6	43	6	3	1	1	0	1	2
Research associates	29	17	59	12	41	19	1	2	2	1	0	4
Senior researchers[5]	45	14	31	31	69	34	3	2	1	0	1	5
Other staff	14	8	57	6	43	11	0	0	0	0	0	3
Total	170.4	105	58	76	42	122	11	11	8	4	3	25

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 121 Peer-reviewed | 40 Not peer-reviewed | 85 Anthology articles | 29 Books | 15 Reports	290
Presentations at congresses ›	463
Cooperations › 2 Programmes | 25 Research institutions | 0 Private sector | 21 Other	48
Transfer activities › 0 Patents | 0 Licenses | 0 Start-ups[7] | 0 Prototypes/processes | 0 CTI-projects[8]	0

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Newsletters: www.lives-nccr.ch/newsletters
Project Newsletters: printed in German and French
Corporate brochure (print)

Materials' Revolution: Computational Design and Discovery of Novel Materials

NCCR MARVEL

The aim of this NCCR is the accelerated design and discovery of novel materials in order to achieve improved properties and performance, or to witness the emergence of original physical properties. We will achieve this goal via a materials' informatics platform of database-driven high-throughput quantum simulations, powered by 1) advanced electronic-structure capabilities, for predictive accuracy, 2) innovative sampling methods to explore configuration/composition space, and 3) application of big-data concepts to computational materials science. The search is targeted to urgent and pressing societal needs, with a focus on materials for energy harvesting, storage, and conversion, materials for information-and-communication technologies, and the processing and stability of materials, especially organic crystals and pharmaceuticals.

Research

Vertical Projects

VP1 – Novel Materials' Physics
Troyer M., Spaldin N., Georges A., Yazyev O.

VP2 – Novel Materials' Applications
Röthlisberger U., Pasquarello A., Marzari N., Andreoni W., Corminboeuf C., Passerone D.

Horizontal Projects

HP3 – Advanced Quantum Simulations
Hutter J., Werner Ph., Troyer M., VandeVondele J.

HP4 – Advanced Sampling Methods
Goedecker S., Parrinello M., Ceriotti M., Smit B., von Lilienfeld A.

HP5 – Materials Informatics
Curioni A., Koch Ch.

Platform Projects

PP6 – Materials Informatics Platform
Schulthess T., Marzari N.

PP7 – Experiments
Nolting F., Kenzelmann M., Gröning P.

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Materials' Revolution: Computational Design and Discovery of Novel Materials
NCCR MARVEL

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- Materials' Project, Lawrence Berkeley Laboratory
- Simons Foundation, New York
- Thomas Young Centre, London
- Psi-k Network
- CECAM, EPF Lausanne

Economy / Other

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- Robert Bosch Research and Technology Center, Cambridge MA

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Self-funding from home institution[1]	1 425 000	1 395 000	1 765 000	2 035 000	6 620 000	19
Self-funding from project participants	2 117 700	2 566 766	2 566 767	2 566 767	9 818 000	28
Third-party funding	104 101	104 101	104 101	104 101	416 404	1
Total	8 896 801	8 455 867	8 635 868	8 865 868	34 854 404	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

Mediality – Historical Perspectives
NCCR Mediality

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The NCCR focuses on the historicity of media and mediality. It investigates forms of communication, transfer, and perception before the era of mass-media dominance and modern teleologically and technologically oriented media discourses. The aim of the NCCR is a historical mediology, which particularly examines change in communication practices, new dynamics in medial forms, and reflection on the conditions of communication. In its third phase the limits of the medial are at the centre of the NCCR's interest. Moments will be systematically analysed in which the display and the apparent breakdown of mediation are mutually entangled. The main terms in this context will be *ostentation,* already used in the previous project phases to denote phenomena of accentuation and displaying, and *implosion,* indicating disintegration, the collapse of differences, and inner heterogeneity.

Research

Module Ostentation

Displaying the town. Medializations of Urban Space and Time
Stercken M.

Writing Medium Architecture
von Arburg H.-G.

The Art of Display
Stierli M., Weddigen T.

Circulation, Appropriation, Redefinition - Colonial Photography in the Postcolonial Context
Krüger G.

Atmospheres in Film and Cinema – Media Oscillations
Tröhler M.

The Nervousness of Film (1895-1918): On the Dynamics of a Medial Peculiarity
Schweinitz J.

Mediality of Visual and Poetological Vagueness
Naumann B., Stoichita V.

Module Implosion

Transgressions and Implosions in Mythical Narrative
Glauser J.

Medial ambiguities
Kiening C.

Immediazations of forms. Border cases of Christian aesthetics
Köbele S.

Combinatorics as Medial Implosion
Kilcher A.

Poetic play and medial transgression in seventeenth-century poetry
Schnyder M.

Court of Justice secrets, Relation, and Verdict
Thier A.

Precarious Things. Materiality and Literacy in the Historiography of the late Enlightenment and Historicism
Sandl M.

Mediality as borderline experience
Schneider S.

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Université de Lausanne (1 group) | ETH Zürich (1 group)

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- Department of Social Anthropology, University of Cape Town, ZA
- Film Studies, Mel Hoppenheim School of Cinema, Concordia University Montréal, CA
- German Department, University of Toronto, CA
- Germanic Studies Department, University of Chicago, US
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- Institut für Afrikawissenschaften, Universität Wien, AT
- Institut für Klassische Philologie, Universität München, DE
- Institutt for lingvistiske og nordiske studier, Universitetet i Oslo, NO
- School of Geography, Queen's University Belfast, IE
- Seminar für Deutsche Philologie, Georg-August-Universität Göttingen, DE
- Seminar für Deutsche Philologie, Universität Mannheim, DE
- Systematische Theologie/ Religionsphilosophie, Universität Rostock, DE
- Wissenschaftsgeschichte der Geistes- und Sozialwissenschaften, Universität Konstanz, DE

Funding

Funding source (CHF)	Year 9	Year 10	Year 11	Year 12	Total	%
SNSF funding	1 088 000	1 176 000	1 176 000	760 000	4 200 000	42
Self-funding from home institution[1]	777 278	663 613	610 613	610 613	2 662 117	27
Self-funding from project participants	931 522	750 000	750 000	750 000	3 181 522	31
Third-party funding	0	0	0	0	0	0
Total	2 796 800	2 589 613	2 536 613	2 120 613	10 043 639	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[2]	Total of Persons	Female	%	Male	%	CH	DE	AT	IT	GB	HK	Other Nations
Management	2.9[3]	8	67	4	33	7	5	0	1	0	0	0
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	26	16	62	10	38	15	9	1	1	0	1	2
Postdoctoral students	3	2	67	1	33	0	2	0	0	1	1	1
Research associates	0	0	0	0	0	0	0	0	0	0	0	0
Senior researchers[4]	26	9	35	17	65	10	15	1	0	0	0	1
Other staff	0	0	0	0	0	0	0	0	0	0	0	0
Total	57.9	35	52	32	48	32	31	2	2	1	2	4

[2] Persons involved in the NCCR in the last reporting period (12 months)
[3] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[4] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[5]	Totals
Publications › 234 Peer-reviewed | 44 Not peer-reviewed | 390 Anthology articles | 109 Books | 18 Reports	795
Presentations at congresses ›	833
Cooperations › 0 Programmes | 225 Research institutions | 0 Private sector | 0 Other	225
Transfer activities › 0 Patents | 0 Licenses | 0 Start-ups[6] | 0 Prototypes/processes | 0 CTI-projects[7]	0

[5] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[6] Start-up companies that have been built up or were considerably supported by NCCRs.
[7] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Newsletter: www.mediality.ch/publikationen_newsletter.php (10 issues)
Book series “Medienwandel – Medienwechsel – Medienwissen“, Chronos-Verlag, Zürich: www.mediality.ch/publikationen_mw.php

Molecular Systems Engineering
NCCR MSE

The NCCR Molecular Systems Engineering will enable and coordinate complementary approaches from Life Sciences, Chemistry, Physics, Engineering Sciences, and Ethics to build functional molecular modules into complex synthetic or cellular systems. Such synthetic systems resemble molecular factories and examples include nanoreactors equipped with functional modules allowing the chemical modification and transport of molecular compounds, synthetic photoreceptor cells engineered to restore vision, nanoreactors that convert energy, and functional modules that work in complementary fashion to convey reactants along spatially designed reaction sequences. By opening new perspectives in the synthesis of chemical, biological and pharmaceutical compounds and in the development of medical diagnostics and therapeutics, this unique approach will lead to new technologies, production processes, and industry branches that further advance the Swiss innovation potential.

Research

Molecular Modules

Molecular Engineered Transport and Targeting Systems
Lim R.

Synthetic Feedback Mechanisms – Self Controlled Oligomer Growth
Mayor M.

Conformational Thermostabilization of Biomol. Modules by Scanning Alanine Mutagenesis
Schertler G.

Macromolecular transporters for Molecular Factories
Stellacci F.

Molecular Factories Based on Artificial Metalloenzymes
Ward T.

Molecular Energy Supply

Hybrid Molecular Devices for Energy Conversion
Calame M.

Engineering of Energy Conversion and Transport Modules for the Assembly of Molecular Factories
Fotiadis D.

Hierarchical Assembly of Multifunctional Interfaces
Housecroft C.

Bioinspired Multicomponent Photosystems
Matile S.

"Smart" stimuli-responsive polymer membranes
Palivan C.

Light-to-Chemical Energy Conversion based on Molecular Catalysts at Interfaces of Membranes
Wenger O.

Engineering Synthetic Systems

Nanoscopically Controlled Templates for the Assembly of Modules and Control of Reactions
Dürig U.

Multifunctionality and Immobilization of Biomolecule-Polymer Assemblies
Meier W.

Assembling, Evolving and Optimizing Hybrid Synthetic Molecular Systems
Panke S.

Droplet-Based Microfluidic Tools to Control Nanoscopic Reaction-Compartments
Pfohl T.

High-Throughput Microfluidic Analysis and Synthesis
Tay S.

Hierarchical Assembly Strategies
Vogel V.

Biomimetic Polymeric Nanoreactors for a Hand- held Cancer Diagnostics Device
Vörös J.

Control Cellular Systems

Efficient Bioproduction in Mammalian Cell Culture using Synthetic Gene Networks
Benenson Y.

Ethical, Societal and Policy Aspects of Molecular Systems Engineering
Biller-Andorno N.

Novel Diagnostic and Therapeutic Opportunities by Engineering Molecular Systems into Cells
Fussenegger M.

The Construction of Molecular Factories Based on a Phototroph Platform
Gademann K.

Nanomechanical Functional Programming of Cellular and Synthetic Systems
Müller D.

Genomic Engineering of Immune Cells for Immunotherapy
Reddy S.

Engineering Sensitive and Adaptable Artificial Photoreceptors to Restore Vision
Roska B.

Model-based Design of Molecular Systems
Stelling J.

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- Institut für Chemie und Biochemie, Freie Universität Berlin, D
- Department of Chemistry and Biotechnology, University of Tokyo, J
- Theoretische und computergestützte Biophysik, Max Planck Institut für Biophysikalische Chemie Göttingen, D
- Max-Planck-Institut für Kolloid- und Grenzflächenforschung Potsdam, D
- Molecular Environmental Microbiology Laboratory, Centro Nacional de Biotecnología, SP
- Institut für Chemie, Technische Universität Berlin, D
- Department of Molecular and Cellular Physiology and Medicine, Stanford University, US
- Max-Planck-Arbeitsgruppen für strukturelle Molekularbiologie, Hamburg, D
- Transregio TR88
- BIOSS Centre for Biological Signalling Studies, Albert-Ludwigs-Universität Freiburg, D

Industry

- Lonza LTD, Basel, CH
- DSM Nutritional Products AG, Kaiseraugst, CH

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Paul Scherrer Institut (1 group) | IBM Research GmbH (1 group)

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Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding	4 225 000	4 225 000	4 225 000	4 225 000	16 900 000	64
Self-funding from home institution[1]	1 160 000	1 160 000	1 160 000	1 160 000	4 640 000	18
Self-funding from ETH Zurich	1 165 000	1 165 000	1 165 000	1 165 000	4 660 000	18
Self-funding from project participants	0	0	0	0	0	0
Third-party funding	0	0	0	0	0	0
Total	6 550 000	6 550 000	6 550 000	6 550 000	26 200 000	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

Molecular Ultrafast Science and Technology
NCCR MUST

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The NCCR "MUST" develops new theoretical concepts and spectroscopic methodologies and applies them to unravel ultrafast dynamic processes in the microcosmos of molecules and solid state materials. The novel techniques encompass for example multi-dimensional spectroscopy, time-resolved electron diffraction, time-resolved X-ray absorption and diffraction, or attosecond VUV spectroscopy. They are fundamental for further developing our understanding of the dynamics of chemical reactions, the charge transport in molecules, the signal processing in bio-molecules, or the complex interplay of different sub-systems in strongly correlated solid state materials. A deeper understanding of matter at a microscopic level is also crucial for dealing with societal challenges such as the quest for alternative energy sources or the development of next generation materials.

Research

Coherent Control in Complex Molecular Systems
Wolf J.-P.

Developing Pump – probe X-ray Spectroscopy for Application at SwissFEL
van Bokhoven J., Sigg H., Milne C.

Dynamics of Light-Induced Interfacial Electron Transfer and Charge Transport in Molecular Materials
Moser J.-E.

Electronic and Structural Dynamics of Chemical and Biological Systems
Chergui M.

Femtosecond and Attosecond VUV-XUV Spectroscopy
Keller U.

Femtosecond IR Spectroscopy Research
Hamm P.

Femtosecond XUV Photoelectron Spectroscopy
Wörner H. J.

Functional Dynamics in Proteins and Molecular Devices
Cannizzo A.

Intense THz Science and Spectroscopy
Feurer Th.

Multi-megahertz Repetition Rate High Power THz Spectroscopy
Südmeyer Th.

Quantitative Atomistic Simulations
Meuwly M.

Simulations of Ultrafast Quantum Dynamics in Gas and Condensed Phase
Röthlisberger U.

Theoretical Methods for Ultrafast Quantum Dynamics
Vanicek J.

Ultrafast Dynamics of Electronic Ordering Phenomena
Staub U.

Ultrafast Dynamics on Surfaces
Hengsberger M., Osterwalder J.

Ultrafast Electron Microscopy of Novel Materials and Hybrid Nanostructures
Carbone F.

Ultrafast Manipulation of Structure in Strongly Correlated Systems
Johnson S.

Ultrafast Structural Dynamics Observed with Femtosecond X-Rays
Beaud P.

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Université de Genève (1 group) | Université de Neuchâtel (1 group) | EPF Lausanne (5 groups)
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- Department of Chemistry, Princeton University, NY, US
- Department of Chemistry, University of California, Irvine, USA
- Institute of Applied Physics, KIT Karlsruhe, DE
- Stanford Linear Accelerator Center, Menlo Park CA, US
- Department of Physics, Imperial College London, UK
- Department of Chemistry, Massachusetts Institute of Technology, Cambridge, US
- Graduate School of Advanced Integration Science, University of Chiba, JP
- Laboratory of Photonics and Interfaces, EPFL, CH
- Max-Planck-Institut für Physik Komplexer Systeme, Dresden, DE

Economy / Others

- Bystronic, Niederoenz, CH
- Novartis, Basel, CH
- OneFive, Zurich, CH
- Rainbow Photonics AG, Zurich, CH
- IONIGHT, Bern, CH
- Plair, Genève, CH
- AME GmbH, Bern, CH
- Supercomputing Systems AG, Zürich, CH

Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding[1]	4 929 000	4 458 000	4 458 000	3 458 000	17 303 000	34
Self-funding from home institution[2]	1 473 000	1 473 000	1 473 000	1 473 000	5 892 000	12
Self-funding from University of Bern	350 000	350 000	350 000	350 000	1 400 000	3
Self-funding from project participants	6 317 885	8 086 171	5 360 135	5 302 698	25 066 889	50
Third-party funding[3]	100 000	100 000	100 000	100 000	400 000	1
Total	13 169 885	14 467 171	11 741 135	10 683 698	50 061 889	100

[1] SNSF funding incl. 120% support grant in year 5
[2] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[3] Not included is CTI funding. Since the start of the NCCR 4 projects have been funded by CTI at a total amount of 3 342 160 CHF (cf. table Output).

Employment

						Most Represented Nations						
Personnel[4]	Total of Persons	Female	%	Male	%	CH	DE	FR	IT	RU	IN	Other Nations
Management	3.5[5]	6	67	3	33	7	1	0	0	0	0	1
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	44	12	27	32	73	7	13	3	0	5	5	11
Postdoctoral students	53	10	19	43	81	6	6	5	7	2	1	26
Research associates	1	1	100	0	0	1	0	0	0	0	0	0
Senior researchers[6]	38	4	11	34	89	23	6	2	1	0	0	6
Other staff	5	0	0	5	100	5	0	0	0	0	0	0
Total	144.5	33	22	117	78	49	26	10	8	7	6	44

[4] Persons involved in the NCCR in the last reporting period (12 months)
[5] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[6] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[7]	Totals
Publications › 391 Peer-reviewed | 16 Not peer-reviewed | 7 Anthology articles | 5 Books | 3 Reports	422
Presentations at congresses ›	514
Cooperations › 10 Programmes | 90 Research institutions | 6 Private sector | 7 Other	113
Transfer activities › 7 Patents | 0 Licenses | 3 Start-ups[8] | 1 Prototypes/processes | 4 CTI-projects[9]	15

[7] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[8] Start-up companies that have been built up or were considerably supported by NCCRs.
[9] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Collection of videos and movies on the MUST website: www.nccr-must.ch/pictures_videos_press/videos_movies_and_podcasts.html

The Migration-Mobility Nexus
NCCR On the Move

Migration to Switzerland has undergone a fundamental change in recent years. In the past long-term immigration prevailed. In the meantime the situation has changed as a result of evolving national and European legislation as well as bilateral economic agreements. Closely interlinked national and global markets have further led to an increase in temporary forms of mobility. The migratory reality today is thus highly complex and, so far, basically no systematic research has been conducted on it. The NCCR "On the Move – The Migration-Mobility Nexus" aims to better understand the changed migration and mobility patterns of today and its consequences for the State, the economy and society at large. It brings together eighteen research projects from social sciences, economics and law.

Research

Inventory of individual statistical data on migration to, from and within Switzerland in a post-census world
Wanner P., Fibbi R.

Mapping the demographics of the new forms of mobility and measuring their socio-economic impact
Wanner P.

From "traditional" to "new" migration: Challenges to the international legal migration regime
Achermann A., Kälin W., Künzli J.

New wine in old skins? Containing "new" migration with traditional approaches – The example of undocumented immigrants in Switzerland
Caroni M.

Labor mobility in Swiss/EFTA Free Trade Agreements: New forms of structuring labor mobility
Panizzon M.

The emergence of a "European Law on Foreigners"
Progin-Theuerkauf S.

Integration through active labor market policy
Bonoli G.

The mobility of the highly skilled towards Switzerland
Leimgruber W.

Labor market effects of "new" migration to Switzerland
Flückiger Y., Müller T.

The effect of the "new" migration on the fiscal balance of foreigners in Switzerland
Sheldon G.

Migration "in the interest of economy as a whole"? The evolution of migrants from objects of politics to subjects of rights: The law and economics of migration
Achermann A.

The new international student mobility between the South and the North
Piguet E.

Restricting immigration: Practices, experiences and resistance
Achermann Ch.

Unity and diversity in cohesion: The concept of integration in a changing world
Amarelle C., D'Amato G.

Citizenship and immigration: An empirical and normative analysis of Swiss philosophy of integration
Gianni M.

Gender as boundary marker in migration and mobility: Case studies from Switzerland
Dahinden J.

"New" migration and new forms of integration: Families in geographical itinerancy
Zittoun T.

Discrimination as an obstacle to social cohesion
D'Amato G., Fibbi R.

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- Institute for Advanced Studies in the Humanities, University of Edinburgh, UK
- IMISCOE, Network of Scholars International Migration, Integration and Social Cohesion
- Centre d'Etudes de l'Ethnicité et des Migrations (CEDEM), Université de Liège
- Department of Politics, University of Sheffield
- Malmö Institute for Studies of Migration, Diversity and Welfare

Others

- Centre de compétence suisse en sciences sociales – FORS, Université de Lausanne, CH
- Centre suisse de compétence pour les droits humains CSDH
- The Centre for European Policy Studies, Bruxelles
- Commission Fédérale pour les questions de Migration, Wabern, CH
- Forum of International and European Research on Immigration – FIERI, Torino
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Universität Bern (2 groups) | Université de Genève (3 groups) | Universität Freiburg (1 group)
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Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding	4 300 000	4 300 000	4 300 000	4 300 000	17 200 000	63
Self-funding from home institution[1]	745 500	811 500	876 500	942 500	3 376 000	12
Self-funding from project participants	1 623 000	1 683 000	1 743 000	1 803 000	6 852 000	25
Third-party funding	0	0	0	0	0	0
Total	6 668 500	6 794 500	6 919 500	7 045 500	27 428 000	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

Origin, Evolution and Characterisation of Planets
NCCR PlanetS

The discovery by Swiss astronomers of the first giant planet outside our solar system in 1995 spawned a unique revolution in modern astronomy. Fundamentally, we have already learned that planets are common objects and that planetary systems are much more diverse than originally predicted. This has pointed out the absolute necessity to combine the knowledge acquired by exploring our solar system with that derived by studying exoplanets. As we move from an era of discovery to one of physical and chemical characterization, the NCCR PlanetS will lay the foundation for an integrated research effort in planetary sciences. Combining astronomical observations, measurements by spacecraft of solar system bodies, laboratory measurements, and theoretical modeling, will catalyze a phase change in the breadth and depth of the research carried out in Switzerland in this area.

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Circumstellar discs and planetary systems
Meyer M. R.

Origin of volatile elements in planets
Schönbächler M., Mezger K.

Towards high resolution spectroscopy of planetary atmospheres
Pepe F.

Data analysis and laboratory support
Thomas N.

Planet formation and evolution
Benz W.

Numerical laboratory for planet formation
Moore B.

Multi-faceted determination of planet properties and system architecture
Udry S.

Platforms
CHEOPS - CHaracterizing ExoPlanets Satellite
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DACE - Data and Analysis Center for Exoplanets
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- European Space Agency
- European South Observatory
- Burgergemeinde Zermatt
- Muséum d'Histoire Naturelles et Musée d'Histoire des Sciences de la ville de Genève

Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding	4 400 000	4 400 000	4 400 000	4 400 000	17 600 000	51
Self-funding from home institution[1]	776 500	1 342 500	1 040 500	1 040 500	4 200 000	12
Self-funding from University of Geneva	675 000	795 000	1 000 000	920 000	3 390 000	10
Self-funding from project participants	2 355 285	2 291 902	2 278 827	2 239 926	9 165 940	27
Third-party funding	0	0	0	0	0	0
Total	8 206 785	8 829 402	8 719 327	8 600 426	34 355 940	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

Quantum Science and Technology
NCCR QSIT

The NCCR "QSIT" is active in a field, which unites the key discoveries of the 20th century: quantum physics and information theory. In future, research in this field will strongly influence science and technology. Potential applications are primarily focused in the area of computer science and sensors. The NCCR "QSIT" takes a multi-disciplinary approach, combining concepts from physics, chemistry, engineering and computer sciences. Researchers from many Swiss universities and basic researchers from industry work together in the NCCR network. Their two common goals are to develop applications in the area of quantum computer science and to investigate new paradigms in physical basic research such as the order and states of material.

Research

Project 1:

Quantum Sensing
Project leaders: Poggio M., Bruder C.

Project 2:

Engineered Quantum States
Project leaders: Imamoglu A., Ensslin K., Wegscheider W.

Project 3:

Quantum Information and Communication
Project leaders: Gisin N., Wallraff A., Warburton R. J.

Project 4:

Quantum Simulation
Project leaders: Esslinger T., Troyer M.

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- Quantum optics laboratory, Harvard Univserity Cambridge, US
- Theory Department, Lancaster University, UK
- Safety & Security Department, Austrian Institute of Technology, AT
- Department of material science, Tohoku University, JP
- METAS Swiss Federal Office for Metrology
- Département de Physique, Université de Sherbrooke, CAN
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Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding[1]	5 500 669	5 400 000	4 900 000	4 720 000	20 520 669	35
Self-funding from home institution[2]	2 877 500	2 877 500	2 877 500	2 877 500	11 510 000	20
Self-funding from University of Basel	1 255 000	1 255 000	1 255 000	1 255 000	5 020 000	8
Self-funding from project participants	7 374 300	5 549 000	4 846 000	4 130 000	21 899 300	37
Third-party funding[3]	0	0	0	0	0	0
Total	17 007 469	15 081 500	13 878 500	12 982 500	58 949 969	100

[1] SNSF funding incl. 120% support grant in year 5
[2] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[3] Not included is CTI funding. Since the start of the NCCR 2 projects have been funded by CTI at a total amount of 727 630 CHF (cf. table Output).

Employment

						Most Represented Nations						
Personnel[4]	Total of Persons	Female	%	Male	%	CH	DE	FR	IT	AT	CN	Other Nations
Management	3.3[5]	6	50	6	50	5	4	1	0	0	0	3
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	36	10	28	26	72	14	8	1	2	2	2	8
Postdoctoral students	34	4	12	30	88	2	11	5	1	1	2	13
Research associates	0	0	0	0	0	0	0	0	0	0	0	0
Senior researchers[6]	35	2	6	33	94	14	9	1	3	1	0	7
Other staff	5	1	20	4	80	3	1	0	0	0	0	1
Total	113.3	23	19	99	81	38	33	8	6	4	4	32

[4] Persons involved in the NCCR in the last reporting period (12 months)
[5] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[6] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[7]	Totals
Publications › 522 Peer-reviewed | 13 Not peer-reviewed | 8 Anthology articles | 7 Books | 1 Reports	551
Presentations at congresses ›	1302
Cooperations › 52 Programmes | 61 Research institutions | 3 Private sector | 0 Other	116
Transfer activities › 6 Patents | 3 Licenses | 0 Start-ups[8] | 1 Prototypes/processes | 2 CTI-projects[9]	12

[7] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[8] Start-up companies that have been built up or were considerably supported by NCCRs.
[9] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Video about the network: see www.nccr-qsit.ethz.ch or directly at YouTube: www.youtube.com/watch?v=u1JFAxhrBFw
Newsletter: www.nccr-qsit.ethz.ch/news/newsletter (appears twice a year).
Current news: www.nccr-qsit.ethz.ch/news/index
KTT initiative qstarter: www.qstarter.ch

The Role of RNA Biology in Disease Mechanisms

NCCR RNA & Disease

Home Institutions

University of Bern
ETH Zurich

Start of the NCCR

May 1, 2014

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The NCCR "RNA & Disease – The Role of RNA Biology in Disease Mechanisms" studies a class of molecules that has long been neglected: RNA (ribonucleic acid) is pivotal for many vital processes and has much more complex functions than initially assumed. For instance, RNA defines the conditions, in a given cell, under which a given gene is activated and to what extent. If any part of this process of genetic regulation breaks down or does not run smoothly, this can cause many different diseases including heart disease, cancer, neurological and metabolic disorders. The NCCR brings together Swiss research groups studying different aspects of RNA biology in various organisms such as yeast, plants, roundworms, mice and human cells. By identifying the regulatory mechanisms that go off course during an illness, the NCCR will also be able to point out new therapeutic targets and help counter the biggest causes of death.

Research

Non-coding RNA functions

Mechanisms and roles of RNA silencing
Bühler M., Grosshans H., Voinnet O.

RNA-mediated effects on genome and chromatin
Bühler M., Lingner J., Nowacki M.

Non-coding RNAs: functions, disease and therapeutic intervention
Hall J., Hall M., Stoffel M., Voinnet O., Zavolan M.

Translation

Eukaryotic ribosomes – their assembly, maturation and turnover
Ban N., Kutay U.

Mitochondrial translation - a drug target against T. Brucei and other trypanosomids
Schneider A.

Regulation of translation and mRNA surveillance
Mühlemann O., Polacek N.

RNA metabolism

Uncovering mechanisms of RNA metabolism
Grosshans H., Schümperli D.

RNA metabolism and neurodegenerative diseases
Bühler M., Allain F., Mühlemann O.

Therapeutic modulation of RNA metabolism
Mühlemann O., Schümperli D.

Technology Platforms

Crystallization
Ban N.

Next Generation Sequencing
Leeb T.

NMR Spectroscopy
Wider G.

Proteomics
Heller M.

RNA Synthesis
Hall J.

Heads of Research Groups

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Zavolan Mihaela, Prof.	Biozentrum, Universität Basel

Participating Institutions

Universität Bern (5 groups) | Universität Basel (2 groups) | EPF Lausanne (1 group) | ETH Zürich (6 groups)
Friedrich Miescher Institute FMI (2 groups)

Evaluation and Monitoring by the Swiss National Science Foundation (SNSF)

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Key collaborations with third parties

Academia

- CNRS, FR
- Cold Spring Harbor Laboratory, USA
- Institute Curie, Paris, FR
- Max Planck Institutes, DE
- MRC LMB Cambridge, UK
- Princeton University, USA
- Rockefeller University, New York, USA
- Sloan Kettering Institute, New York, USA
- University of California, USA
- University of Milano, IT
- University of Montreal, CA
- University of Tokyo, JP
- Yale University, New Haven, USA

Economy / Others

- Bayer, Leverkusen, DE
- Holcim Foundation, Zurich, CH
- Novartis, Basel, CH
- Swiss Cancer League, Bern, CH
- Swiss Foundation for Research on Muscle Diseases, Cortaillod, CH
- Synthena, Bern, CH

Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding[1]	3 705 907	4 009 000	4 401 000	4 499 000	16 614 907	43
Self-funding from home institution[2]	1 277 500	1 277 500	1 277 500	1 277 500	5 110 000	13
Self-funding from ETH Zurich	1 442 500	2 022 500	2 492 500	2 342 500	8 300 000	21
Self-funding from project participants	2 280 000	2 127 500	2 127 500	2 127 500	8 662 500	22
Third-party funding	200 000	200 000	0	0	400 000	1
Total	8 905 907	9 636 500	10 298 500	10 246 500	39 087 407	100

[1] SNSF funding incl mobility grant in Year 1
[2] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

Intelligent Robots for Improving the Quality of Life
NCCR Robotics

NCCR Robotics – "Intelligent Robots for Improving the Quality of Life" is at the forefront of robotics research and develops robots that co-exist symbiotically with humans in order to enable them to help both individuals and society. NCCR Robotics promotes three main strands of research: "Wearable robots" to increase the mobility and autonomy of disabled people, "Rescue robots" to help with the search for victims after disasters and "Educational robots" to support the training of the next generation of scientists and engineers. In order to progress towards this vision, the NCCR "Robotics" is advancing fundamental insights in terms of technology, materials and control mechanisms.

Research

Wearable Robotics Grand Challenge

Micera S., Riener R.

Soft3
Paik J., Gassert R., Billard A., Lacour S.

ReGait
Courtine G., Micera S., Lacour S., del Millan J., Ijspeert A., Gassert R., Paik J., Riener R.

ReHand
del Millan J., Micera S., Riener R., Billard A., Gassert R.

Cybathlon
Riener R.

Rescue Robotics Grand Challenge

Ijspeert A., Buchli J.

Multimodal legged robots
Siegwart R., Floreano D., Ijspeert A., Paik J.

Multimodal flying robots
Ijspeert A., Buchli J., Scaramuzza D., Siegwart R., Delbruck T.

Rescue collaboration and coordination
Gambardella L., Scaramuzza D., Floreano D., Buchli J.

Rescue evaluation and field test actions
Ijspeert A., Buchli J.

Transversal Educational Activity

Mondada F., Dillenbourg P.

Modular components for Cellulo
Mondada F.

Educative environment for Cellulo
Dillenbourg P.

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EPF Lausanne, ETH Zurich

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- Delft Biorobotics Lab, TU Delft, NL
- DLR, Deutsches Zentrum für Luft- und Raumfahrt, DLR, DE
- Dynamic legged systems Lab, Advanced Italian Institute of Technology, Genova, IT
- IST, Lisbon PT
- NEUWalk (EU-FP7)
- Service de Gériatrie, Centre Hospitalier Universitaire Vaudois CHUV, Lausanne, CH
- Spinal Cord Injury Center, University Hospital Balgrist, Zürich, CH
- ZHAW, Zürich, CH

Economy / Other

- Alstom Inspection Robotics, Zurich, CH
- Clinique romande de réadaptation CRR, Schweizerische Unfallversicherungsanstalt SUVA, Sion CH
- Hocoma AG, Volketswil, CH
- inilabs GmbH, Zurich, CH
- Skybotix, Zürich, CH
- Zürcher Höhenklinik Wald, Wald, CH

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Dalle Molle Institute for Artificial Intelligence IDSIA, Manno (1 group)

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Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding	4 260 000	4 260 000	4 115 000	2 660 000	15 295 000	46
Self-funding from home institution[1]	1 681 750	1 681 750	1 681 750	1 681 750	6 727 000	20
Self-funding from ETHZ	1 475 000	1 075 000	1 075 000	975 000	4 600 000	15
Self-funding from project participants	1 578 000	1 578 000	1 578 000	1 578 000	6 312 000	19
Third-party funding[2]	0	0	0	0	0	0
Total	8 994 750	8 594 750	8 449 750	6 894 750	32 934 000	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment
[2] Not included is CTI funding. Since the start of the NCCR 2 projects have been funded by CTI at a total amount of 2 515 069 CHF (cf. table Output).

Employment

						Most Represented Nations						
Personnel[3]	Total of Persons	Female	%	Male	%	CH	DE	IT	FR	US	IR	Other Nations
Management	4.6[4]	6	75	2	25	4	0	1	2	0	0	2
Master students	3	2	0	1	0	0	1	0	0	0	0	2
Doctoral students	48	7	15	41	85	14	6	4	3	1	5	18
Postdoctoral students	22	3	14	19	86	3	1	2	2	2	0	12
Research associates	7	0	0	7	100	3	1	1	0	1	1	0
Senior researchers[5]	27	3	11	24	89	10	1	4	2	3	1	7
Other staff	32	20	63	12	38	24	2	0	1	3	0	3
Total	143.6	41	28	106	72	58	12	12	10	10	7	44

[3] Persons involved in the NCCR in the last reporting period (12 months)
[4] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[5] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[6]	Totals
Publications › 281 Peer-reviewed | 26 Not peer-reviewed | 12 Anthology articles | 9 Books | 16 Reports	344
Presentations at congresses ›	471
Cooperations › 12 Programmes | 68 Research institutions | 15 Private sector | 13 Other	108
Transfer activities › 13 Patents | 3 Licenses | 8 Start-ups[7] | 31 Prototypes/processes | 2 CTI-projects[8]	57

[6] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[7] Start-up companies that have been built up or were considerably supported by NCCRs.
[8] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Brochure „Intelligent robots for improving the quality of life“:
www.nccr-robotics.ch/files/content/sites/nccrrobotics_neutre/files/HomePage/10465-depliant_GB_A5_planche.pdf
Link for Newsletter: nccr-robotics.ch/op/preview/page-106585.html
Facebook: www.facebook.com/NCCRRobotics?fref=ts
LinkedIn: linkd.in/1w4rRCF

The Mathematics of Physics
NCCR SwissMAP

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July 1, 2014

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Physicists use the language of mathematics to describe the processes that they observe. However, mathematics is more than a language. It is also a collection of complex, evolving ideas. At the threshold between theoretical physics and mathematics – where the mathematician's stringency and the physicist's intuition bear the greatest fruit – both sides benefit from closer cooperation. Physics wins when it can use mathematics to better describe nature and the cosmos; mathematics wins when the description of natural phenomena gives it a deeper understanding of the objects it uses. The National Centre of Competence in Research (NCCR) "SwissMAP" aims to take this melding of minds to the next level and establish an internationally renowned "Swiss Institute for Advanced Research in Mathematics and Physics". The objective is to create a place where researchers can focus on fundamental questions, such as whether string theory really is suitable for describing all of the known force fields and interactions in a uniform "Theory of Everything".

Research
Geometry, Topology, and Physics
Pandharipande R.

Field Theory
Felder G.

Statistical Mechanics
Smirnov S.

String Theory
Marino Beiras M.

Quantum Systems
Graf G. M.

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Participating Institutions

Universität Zürich (5 groups) | Université de Genève (13 group) | Universität Bern (1 group)
ETH Zurich (10 groups) | EPF Lausanne (4 groups) | CERN (3 groups)

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Huybrechts Daniel, Prof.	Institut für Mathematik, Universität Bonn, DE
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- Columbia University, USA
- Cornell University, USA
- University of Chicago, USA
- University of Michigan, USA
- University of British Columbia, Canada
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- Institut de Physique Théorique, CEA-Saclay, France
- Université Paris-7, France
- Université de Lyon, France
- University of Cambridge, UK
- University of Oxford, UK
- University of Loughborough, UK
- University of Helsinki, Finland
- Lund University, Sweden
- Technion - Israel Institute of Technology, Israel
- Hebrew University of Jerusalem, Israel
- HRI Allahabad, India

Funding

Funding source (CHF)	Year 1	Year 2	Year 3	Year 4	Total	%
SNSF funding	2 300 000	2 900 000	3 000 000	3 000 000	11 200 000	41
Self-funding from home institution[1]	655 000	815 000	865 000	865 000	3 200 000	11
Self-funding from ETH Zurich	700 000	800 000	850 000	1 350 000	3 700 000	13
Self-funding from project participants	2 484 000	2 484 000	2 484 000	2 484 000	9 936 000	35
Third-party funding	0	0	0	0	0	0
Total	6 139 000	6 999 000	7 199 000	7 699 000	28 036 000	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

› Statistical data will be published later.

The synaptic bases of mental diseases
NCCR SYNAPSY

The aim of the NCCR "SYNAPSY" is to develop an ambitious translational programme linking neuroscience to psychiatry with the aim to uncover the pathogenetic neurobiological mechanisms underlying mental and cognitive disorders. This will be achieved by bringing together a group of internationally recognized basic neuroscientists active in cutting-edge research relevant to higher brain functions with research-oriented academic psychiatrists. In addition to the expected scientific outcomes, this NCCR will have an important clinical and societal impact: based on the understanding of the biological mechanisms underlying mental disorders, one can expect the development of novel preventive and therapeutic approaches which ultimately will improve the quality of life of patients. It will also contribute to the emergence of a new generation of clinical psychiatrists with a strong neuroscientific background.

Research

AXIS 1
GENE MEDIATED PSYCHIATRIC DISORDERS

Project 1: 22q11 Deletion Syndrome

Clinical Cohort
Eliez S., Michel C.

Fundamental Neuroscience
Caroni P., Muller D., Michel C., Carleton A., Antonarakis S.

Project 2: Biomarkers of Early Psychosis

Clinical Cohort
Conus P., Clarke S., Murray M., Blanke O.

Fundamental Neuroscience
Do K. Q.

Project 3: Autism Spectrum Disorders

Clinical Cohort
Schaer M., Eliez S., Michel C.

Fundamental Neuroscience
Scheiffele P., Caroni P., Schneggenburger R., Bellone C.

AXIS 2
EXPERIENCE DEPENDENT PSYCHOPATHOLOGY

Project 4: Developmental Stress

Clinical Cohort
Ansermet F., Schechter D., Clarke S., Murray M., Michel C.

Fundamental Neuroscience
Sandi C., Dayer A., Gräff J., Holtmaat A., Lüscher C., Lüthi A.

Project 5: Mood Disorders

Clinical Cohort
Marquet P., Preisig M., Aubry J.-M., Dayer A.

Fundamental Neuroscience
Magistretti P., Volterra A., Bezzi P.

KTT projects

GABA-B receptor subtypes as therapeutic targets for mental health disorders
Bettler B.

Influence of genetic polymorphisms on body mass index and fat mass in patients with psychotropic treatments
Cardinaux J-R., Eap C.

Endophenotypes of schizophrenia
Herzog M.

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The synaptic bases of mental diseases
NCCR SYNAPSY

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- Department of Psychiatry, University of Bremen, Bremen, DE
- Clinic for affective disorders and general psychiatry, University Hospital Zurich, CH
- Institute of Physiology, University of Freiburg, Freiburg, DE
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- Department of Psychiatry, Universität Medizin, Berlin, DE
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- Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, DE
- Medical Image Processing Lab, Geneva University, CH
- Signal Processing Lab, EPFL, Lausanne, CH
- Department of Psychiatry, Charité, Berlin, DE
- Central Institute of Mental Health, Mannheim, DE
- Laboratoire d'Etude de l'Apprentissage et du Développement, Bourgogne University, Dijon, FR
- Institute of Immunology, Alexander Fleming Biomedical Sciences Research Center, Vari, GR
- Department of Genetics, Albert Einstein College of Medicine, New York, US

Economy / Others

- Roche, Basel, CH
- Life Science Communication AG, Küsnacht, CH
- Fondation de Préfargier, Marin-Epagnier, CH

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Participating Institutions

Universität Basel / Friedrich-Miescher-Institut (4 groups) | Université de Genève (8 groups)
Université de Lausanne (2 groups) | EPF Lausanne (6 groups)
Centre hospitalier universitaire vaudois (CHUV) (10 groups) | Hôpitaux Universitaires de Genève (HUG) (3 groups)

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Funding

Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding	4 662 000	4 662 000	4 660 000	3 496 000	17 480 000	37
Self-funding from home institution[1]	1 950 000	2 150 000	1 500 000	1 300 000	6 900 000	15
Self-funding from University of Lausanne	375 000	375 000	375 000	375 000	1 500 000	3
Self-funding from University of Geneva	588 000	588 000	863 000	863 000	2 902 000	6
Self-funding from project participants	4 620 107	4 582 107	4 582 107	4 582 107	18 366 428	39
Third-party funding	0	0	0	0	0	0
Total	12 195 107	12 357 107	11 980 107	10 616 107	47 148 428	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[2]	Total of Persons	Female	%	Male	%	CH	FR	IT	DE	ES	GB	Other Nations
Management	2.9[3]	4	57	3	43	5	0	0	1	1	0	0
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	29	18	62	11	38	13	0	3	2	1	2	8
Postdoctoral students	26	12	46	14	54	7	7	2	0	0	0	10
Research associates	31	24	77	7	23	19	2	4	0	3	3	4
Senior researchers[4]	88	27	31	61	69	43	11	9	6	3	3	17
Other staff	38	33	87	5	13	21	5	2	5	1	1	3
Total	214.9	118	54	101	46	108	25	20	14	9	9	42

[2] Persons involved in the NCCR in the last reporting period (12 months)
[3] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[4] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[5]	Totals
Publications › 168 Peer-reviewed | 20 Not peer-reviewed | 16 Anthology articles | 14 Books | 0 Reports	218
Presentations at congresses ›	354
Cooperations › 5 Programmes | 23 Research institutions | 2 Private sector | 6 Other	36
Transfer activities › 1 Patents | 0 Licenses | 0 Start-ups[6] | 0 Prototypes/processes | 0 CTI-projects[7]	1

[5] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[6] Start-up companies that have been built up or were considerably supported by NCCRs.
[7] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

Media & news: www.nccr-synapsy.ch/medias
Presentation leaflet: http://bit.ly/1bRUxgU
Synapsy newsletters (3): http://bit.ly/1dpAMQJ | http://bit.ly/1fV982x | http://bit.ly/1a0AHz3

From transport physiology to identification of therapeutic targets

NCCR TransCure

The NCCR "TransCure" seeks to integrate the disciplines of physiology, structural biology and chemistry with a focus on membrane transport proteins. These proteins are essential in nearly all aspects of human physiology and play an important role in therapeutic discovery. Their dysfunction contributes to a myriad of diseases ranging from neurodegeneration, epilepsy and cardiac disorders to cancer, diabetes and osteoporosis. The researchers aim to achieve a more profound understanding of the structures, mechanisms and pathophysiological roles of selected membrane transport proteins. Linking these basic scientific advancements to a translational approach, TransCure will bridge an in-depth understanding of membrane transport proteins to the development of novel therapeutic opportunities.

Research

Astrocyte-specific targeting: vesicular glutamate and monoamine transporters
Bezzi P., Dutzler R., Gertsch J., Reymond J.-L., Volterra A.

Na+/H+ and Na+/Ca2+ exchangers NHA2 and NCX1
Fuster D., Hilge M., Hofstetter W., Reymond J.-L., Stahlberg H.

Iron transporters DMT1 and FPN
Albrecht C., Dutzler R., Hediger M., Hofstetter W., Reymond J.-L.

Multidrug transporters ABCG2 and MATE1
Altmann K.-H., Locher K., Stieger B.

Canalicular lipid transporters
Altmann K.-H., Gertsch J., Locher K., Stieger B.

Putative endocannabinoid transporter
Altmann K.-H., Gertsch J., Reymond J.-L.

Cation channel TRPM4
Abriel H., Gertsch J., Reymond J.-L.

SLC7 amino acid transporters
Albrecht C., Altmann K.-H., Charles R.-P., Fotiadis D., Gertsch J., Lochner M.

Genetics and membrane transporters
Bochud M.

Uric acid transporter GLUT9
Baumann M., Surbek D.

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Start of the NCCR

November 1, 2010

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From transport physiology to identification of therapeutic targets
NCCR TransCure

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- Department of Biochemistry, University of Cambridge, Cambridge, GB
- Department of Neuroscience, Columbia University, New York, US
- Department of Physiology, Johns Hopkins University, Baltimore, US
- Department of Structural Biology, Free University of Brussels, Brussels, BE
- Department of Surgery & Cancer, Imperial College, London, GB
- Hematology, St. Jude Children's Hospital, Memphis, US
- IFP TransCure, Marie Curie, European Commission/FP7
- Institut du Thorax, Université de Nantes, Nantes, FR
- Institute for Neurodegenerative Diseases, University of California (UCSF), San Francisco, US
- Institute for Research in Biomedicine, University of Barcelona, Barcelona, ES
- Institute of Human Development, University of Manchester, Manchester, GB
- Membrane Research Group, Hungarian Academy of Sciences, Budapest, HU
- Pharmacology and Physiology, University of Medicine and Dentistry of New Jersey, Newark, US
- Phyisology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, US
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Universität Zürich (2 groups), ETH Zürich (2 groups)

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Funding source (CHF)	Year 5	Year 6	Year 7	Year 8	Total	%
SNSF funding	3 029 000	3 029 000	2 831 000	2 831 000	11 720 000	43
Self-funding from home institution[1]	1 000 000	1 000 000	1 000 000	1 000 000	4 000 000	14
Self-funding from project participants	2 957 400	2 960 150	2 978 150	2 984 550	11 880 250	43
Third-party funding	130 000	0	0	0	130 000	0
Total	7 116 400	6 989 150	6 809 150	6 815 550	27 730 250	100

[1] Personnel costs, equipment and consumables, not included infrastructure and basic equipment

Employment

						Most Represented Nations						
Personnel[2]	Total of Persons	Female	%	Male	%	CH	DE	IT	FR	IN	AT	Other Nations
Management	3.5[3]	4	44	5	56	6	3	0	0	0	0	0
Master students	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral students	25	10	40	15	60	9	1	4	2	2	2	6
Postdoctoral students	42	10	24	32	76	9	5	7	6	4	0	14
Research associates	0	0	0	0	0	0	0	0	0	0	0	0
Senior researchers[4]	29	3	10	26	90	18	3	4	2	0	2	3
Other staff	24	16	67	8	33	18	3	0	1	0	0	2
Total	123.5	43	33	86	67	60	15	15	11	6	4	25

[2] Persons involved in the NCCR in the last reporting period (12 months)
[3] Full-time equivalent, including NCCR-Director and persons in charge of knowledge and technology transfer, and education and training
[4] Including leaders of the individual projects and other organisational units of the NCCR

Output

Type of output[5]	Totals
Publications › 116 Peer-reviewed | 9 Not peer-reviewed | 3 Anthology articles | 1 Books | 6 Reports	135
Presentations at congresses ›	93
Cooperations › 5 Programmes | 74 Research institutions | 8 Private sector | 0 Other	87
Transfer activities › 6 Patents | 2 Licenses | 0 Start-ups[6] | 0 Prototypes/processes | 0 CTI-projects[7]	8

[5] This table displays the major indicators in knowledge and technology transfer. The output data of NCCRs differ considerably according to disciplinary cultures.
[6] Start-up companies that have been built up or were considerably supported by NCCRs.
[7] Projects funded by the Commission for Technology and Innovation (CTI) that have been initiated by members of NCCRs and are thematically linked to NCCR projects.

Communication

TransCure Translations Newsletter (2 issues): www.nccr-transcure.ch/index.php?id=96&L=0
TransCure Network Brochures (e, g, f): www.nccr-transcure.ch/index.php?id=124&L=0
Newspaper articles and press releases: www.nccr-transcure.ch/index.php?id=6&L=0
BioMedical Transporters Conference Series: www.bioparadigms.org/conference/index.htm
Genomic Transporter Database – SLC Series: www.bioparadigms.org/slc/intro.htm

Overview of terminated NCCRs
1st Call (2001 - 2013)

The 1st call for submissions to set up NCCRs was published in January 1999. Priority was given to four areas of research: life sciences, social sciences and humanities, sustainable development and environment, information and communication technologies. The budget was also made available to projects involving promising topics from outside these priority areas. The SNSF assessed 82 pre-proposals and 34 full proposals. The SNSF presented 18 full pro-posals of outstanding merit to the Federal Department of Home Affairs, which made the final selection of 14 NCCRs in December 2000.

All 14 NCCRs that started in 2001 could be granted two extensions of four years each on the basis of encouraging interim evaluations. Hence, they concluded their work in 2013. The data below illustrate the various achievements of the NCCRs (statistic data as at: 11 December 2013). Further details can be found on the website of each NCCR and on the SNSF website www.nccr.ch.

List of the 14 NCCRs

	NCCR-Director	Home Institution	Web Address
Climate – Climate Variability, Predictability and Climate Risks	Wanner H. (until 2007) Stocker Th.	University of Berne	www.nccr-climate.unibe.ch
CO-ME – Computer Aided and Image Guided Medical Interventions	Székely G.	ETH Zurich	co-me.ch
FINRISK – Financial Valuation and Risk Management	Gibson R. (until 2009) Habib M.	University of Zurich	www.nccr-finrisk.ch
Genetics – Frontiers in Genetics – Genes, Chromosomes and Development	Duboule D.	University of Geneva	frontiers-in-genetics.org
IM2 – Interactive Multimodal Information Management	Bourlard H.	Idiap Martigny	www.im2.ch
MaNEP – Materials with Novel Electronic Properties	Fischer Ø. (until 2013) Renner Ch.	University of Geneva	www.manep.ch
MICS – Mobile Information and Communication Systems*	Vetterli M. (until 2004) Aberer K.	EPF Lausanne	www.mics.org
Molecular Oncology – From Basic Research to Therapeutic Approaches	Aguet M.	EPF Lausanne	www.nccr-oncology.ch
Nanoscale Science – Impact on Life Sciences, Sustainability, Information and Communication Technologies	Güntherodt H.-J. (until 2006) Schönenberger Ch.	University of Basel	www.nanoscience.ch
Neuro – Neural Plasticity and Repair	Möhler H. (until 2005) Schwab M.	University of Zurich	www.nccr-neuro.uzh.ch
North-South – Research Partnerships for Mitigating Syndromes of Global Change	Hurni H.	University of Berne	www.north-south.unibe.ch
Plant Survival – Plant Survival in Natural and Agricultural Ecosystems	Rahier M. (until 2008) Turlings T.	University of Neuchâtel	unine.ch/plantsurvival
Quantum Photonics	Ilegems M. (until 2005) Deveaud-Plédran B.	EPF Lausanne	nccr-qp.epfl.ch
Structural Biology – Molecular Life Sciences: Three Dimensional Structure, Folding and Interactions	Grütter M.	University of Zurich	www.structuralbiology.uzh.ch

Funding 2001-2013

Funding source (CHF)	2001-2005	2005-2009	2009-2013	Total	%
Federal contribution	224 058 657	210 000 000	136 037 000**	570 095 657	31
Self-funding Home Institution*	81 908 102	88 606 476	96 676 420	267 190 998	15
Self-funding from project participants	225 257 080	275 835 465	265 229 642	766 322 187	42
Third-party funding	82 596 913	85 198 223	60 205 140	228 000 276	12
Total	613 820 752	659 640 164	558 148 202	1 831 609 118	100

* including agreed self-funding from partner institution ETHZ (NCCR Neuro, Structural Biology) and University of Lausanne (NCCR Molecular Oncology)
** including 10 Mio. CHF "economic stimulus" and 7.977 Mio. CHF "strong Swiss franc" package

Knowledge and technology transfer – Output Data

Type of output	Total
Publications › 18 068 Peer-reviewed | 2597 Not peer-reviewed | 1102 Anthology articles | 775 Books | 1849 Reports	24 391
Presentations at congresses ›	28 041
Cooperation › 609 Programmes | 2578 Research institutions | 776 Private sector | 373 Other	4337
Transfer activities › 341 Patents | 74 Licenses | 79 Start-ups | 581 Prototypes/processes | 127 CTI-projects	1202

Education and Training – Advancement of women

Figures of young researchers

Category		Sex				Nationality			
	Total	M	%	F	%	CH	%	Other	%
Doctoral students	3105	2168	70	937	30	1112	36	1993	64
Postdocs	1819	1328	73	491	27	389	21	1430	79

First employer after training

Category	Doctoral students (%)	Postdocs (%)
Academic sector	51.3	57.3
Private sector	13.3	14.1
Public sector	3.3	4.4
Other	2.6	2.3
Unknown	10.0	11.9
Training ongoing*	19.5	10.0
Total	100.0	100.0

* Training not yet finished when the NCCR has ended

The 14 NCCRs also initiated a high number of local or inter-institutional doctoral schools, master courses, curriculae, summer schools, special courses for soft skills, etc. and many measures to support young female researchers.

Impact on research structures

Number of professorial positions	
New assistant professorships	105
New full professorships	101
Replacement of existing professorships	36
Total	242

The 14 NCCRs also established around 27 technical platforms. In addition, they have led, or will lead, to the creation of 10 new research centers. These centers ensure that the research areas are firmly established at the home or partner institutions and contribute to the national and international visibility of the research. They are:

- Centre for astronomical, physical and mathematical sciences, University of Geneva, NCCR MaNEP, currently being established
- Center for Climate Systems Modeling (C2SM), ETH Zurich, www.c2sm.ethz.ch, NCCR Climate
- Centre for Development and Environment (CDE), University of Berne, www.cde.unibe.ch, NCCR North-South
- Centre of Excellence in Chemical Ecology, University of Neuchâtel, NCCR Plant Survival, launch is expected in 2014
- Institute of Genetics and Genomics of Geneva (iGE3), University of Geneva, www.ige3.unige.ch, NCCR Genetics
- Oeschger Centre for Climate Change Research (OCCR), University of Berne, www.oeschger.unibe.ch/index_de.html, NCCR Climate
- Swiss Cancer Center Lausanne (SCCL), University of Lausanne and ETH Lausanne, cf. news on http://isrec.epfl.ch NCCR Molecular Oncology, currently being established
- Swiss Finance Institute (SFI), private foundation, www.swissfinanceinstitute.ch, NCCR FINRISK
- Swiss Nanoscience Institute (SNI), University of Basel, www.nanoscience.ch/nccr, NCCR Nanoscale Sciences
- Zurich Centre for Molecular Structure and Mechanism (ZCMSM), University of Zurich and ETH Zurich, NCCR Structural Biology, inauguration lies ahead