

**ETH**

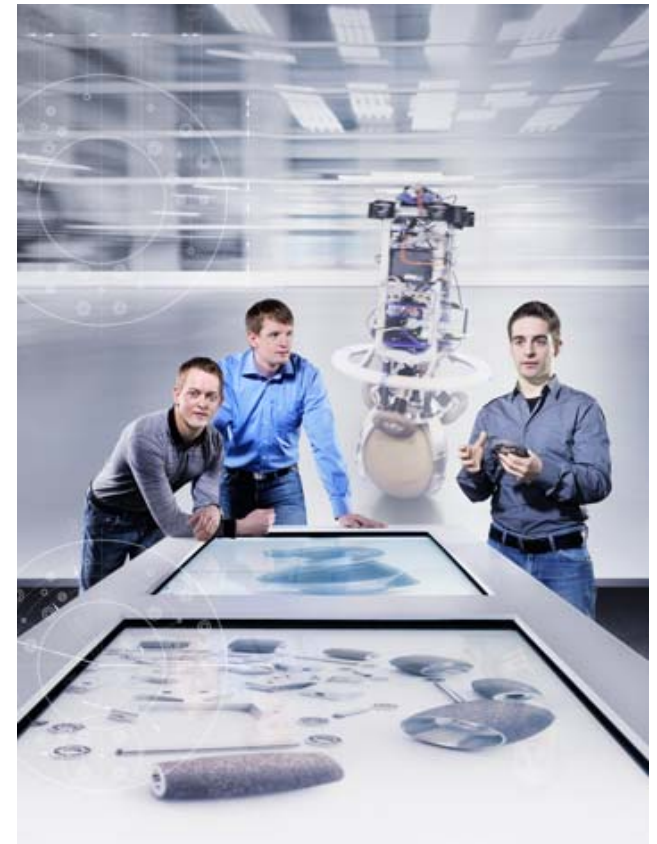
Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

# ETH Zurich – serving society



# Since the beginning: an engine of innovation

- **Founded 1855**  
The “Federal Polytechnical School” is the driving force of industrialisation in Switzerland
- **Flagship of national science**  
In the 20<sup>th</sup> century successful combination of theoretically formulated and experimentally tested knowledge
- **International university**  
Today, a place of study, research and employment for approximately 25,000 people from 80 different countries



# Globally networked with leading universities (1/2)



# Globally networked with leading universities (2/2)

## IDEA League

Imperial College London

TU Delft

RWTH Aachen

ParisTech

## GlobalTech Global Alliance of Technological Universities

California Institute of Technology

Georgia Institute of Technology

Imperial College London

Indian Institute of Technology Bombay

Nanyang Technological University

Shanghai Jiao Tong University

## GULF Global University Leaders Forum

25 universities worldwide

## AGS Alliance for Global Sustainability

University of Tokyo

MIT Massachusetts Institute of Technology

Chalmers University of Technology

## IARU International Alliance of Research Universities

Australian National University

National University of Singapore

Peking University

University of California, Berkeley

University of Cambridge

University of Copenhagen

University of Oxford

University of Tokyo

Yale University

## Excellent infrastructure

- Two main locations in Zurich
  - Historic main building in the heart of Zurich, built by Gottfried Semper
  - Modern campus on the outskirts of the city, in Hönggerberg, which links science, the business world and the general public
- Additional locations in Switzerland
  - Basel: Department of Biosystems Science and Engineering (D-BSSE)
  - Lugano: Swiss National Supercomputing Center (CSCS)
  - Other decentralized entities
- Research facility in Singapore
  - Singapore ETH Centre for Global Environmental Sustainability (SEC)



ETH Zurich, Zentrum



ETH Zurich, Hönggerberg

## Excellence in research

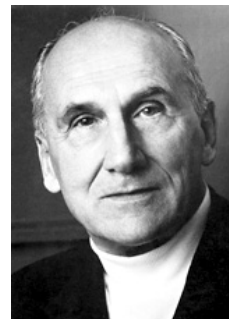
- Top university in continental Europe
  - Times Higher Education: “THE World University Ranking”  
2011: no. 15 in the world
  - Quacquarelli Symonds Ltd: “QS World University Ranking”  
2011: no. 18 in the world
  - Shanghai Jiao Tong University: “Academic Ranking of World Universities”  
2011: no. 23 in the world
- 21 Nobel Laureates, as for example:



Leopold Ruzicka  
Chemistry, 1939



Wolfgang Pauli  
Physics 1945



Vladimir Prelog  
Chemistry, 1975



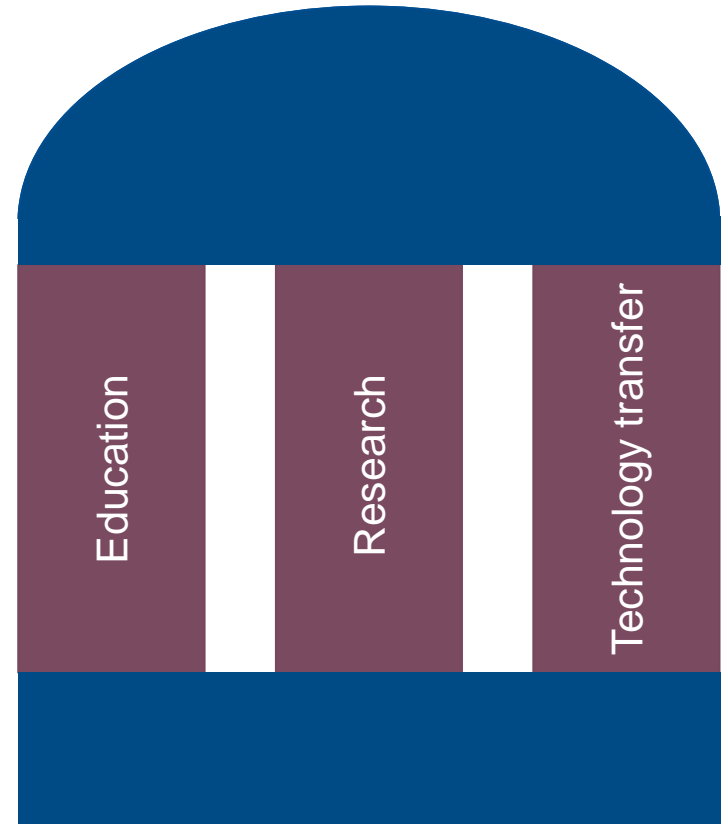
Richard Ernst  
Chemistry, 1991



Kurt Wüthrich  
Chemistry, 2002

## Excellence based on 3 pillars

- Advance and support high-quality education and research at the highest international level
- Promote networked and system-oriented thinking and acting
- Foster intellectual and cultural diversity as well as academic freedom for education and research
- Transfer scientific results to society

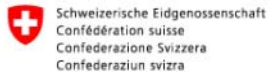


## Confronting new challenges: strategic topics

- Energy and climate change
- Life and health
- Security and risk
- Cities and development
- Information and intelligence
- Materials and processes
- Atoms and the universe



# Strong national network



**Federal Department of Home Affairs (FDHA)**



## ETH Domain

Interconnected system of technical universities and research institutions

Strategic management and supervisory body: ETH Board

### EPF Lausanne



### ETH Zurich

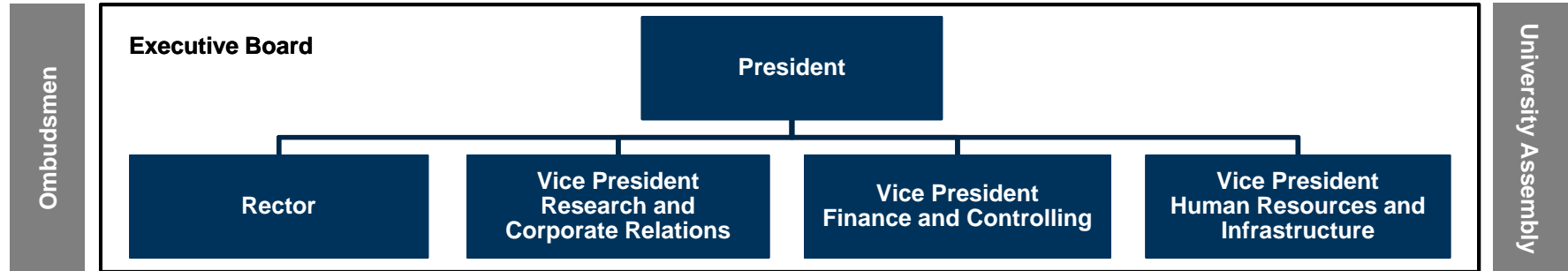


Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

### Research Institutions



# Managing scientific diversity: organisation



**16 Departments**

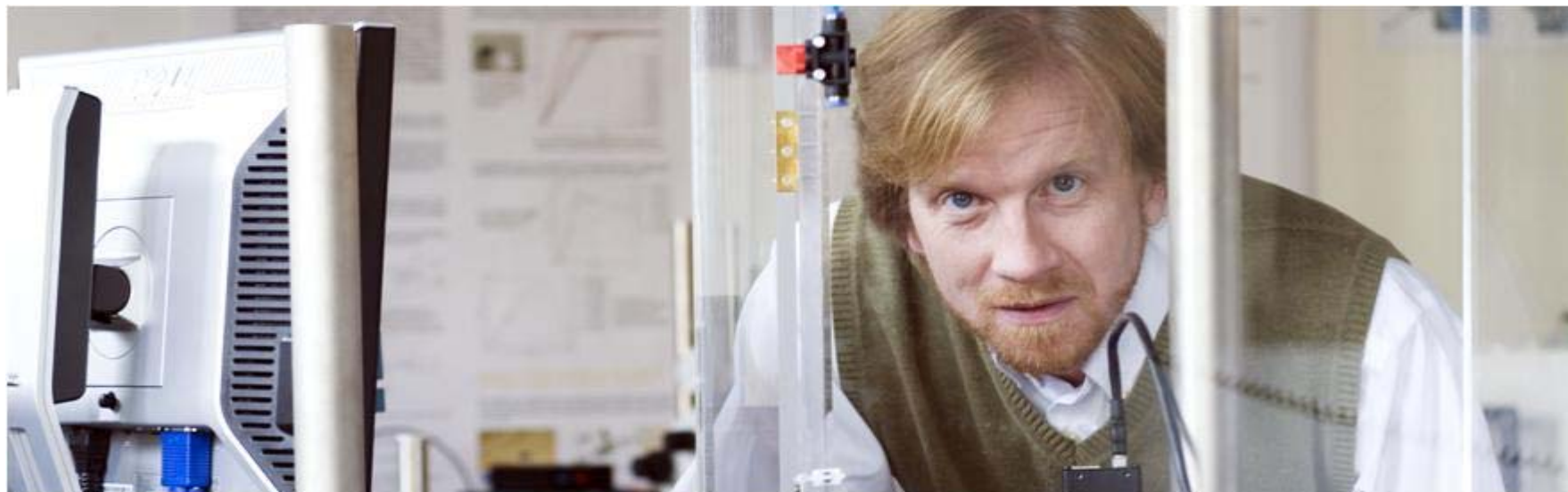
Architecture and Civil Engineering	Engineering Sciences	Natural Sciences and Mathematics	System-oriented Natural Sciences	Management and Social Sciences
Architecture	Mechanical and Process Engineering	Mathematics	Earth Sciences	Management, Technology and Economics
Civil, Environmental and Geomatic Engineering	Information Technology and Electrical Engineering	Physics	Environmental Systems Science	Humanities, Social and Political Sciences
	Computer Science	Chemistry and Applied Biosciences	Health Sciences and Technology	
	Materials Science	Biology		
	Biosystems Science and Engineering			

## Key figures: students 2011

<b>Students, headcount</b> international	<b>17,187</b>	<b>36 %</b>
<b>Total registrations</b>	<b>17,887</b>	
<b>Bachelor students</b> international	<b>7,920</b>	<b>20 %</b>
<b>Master students</b> international	<b>4,562</b>	<b>37 %</b>
<b>Guest students</b> international	<b>361</b>	<b>96 %</b>
<b>Doctoral students</b> international	<b>3,685</b>	<b>65 %</b>
<b>MAS/MBA students</b> international	<b>659</b>	<b>34 %</b>

# Key figures: professors 2011

<b>Professors</b> in full-time equivalents (rounded)		<b>428</b>
Full professors and Associate professors		350
Assistant professors		74
Members of the Executive Board		4



# Key figures: staff 2011

<b>Staff, headcount</b> in full-time equivalents (rounded)	<b>10,040</b>	<b>7,501</b>
<b>Research and education, incl. doctoral students</b> (full-time equivalents, rounded)		6,431
<b>Executive Board, administrative and infrastructure staff</b> (full-time equivalents, rounded)		1,070



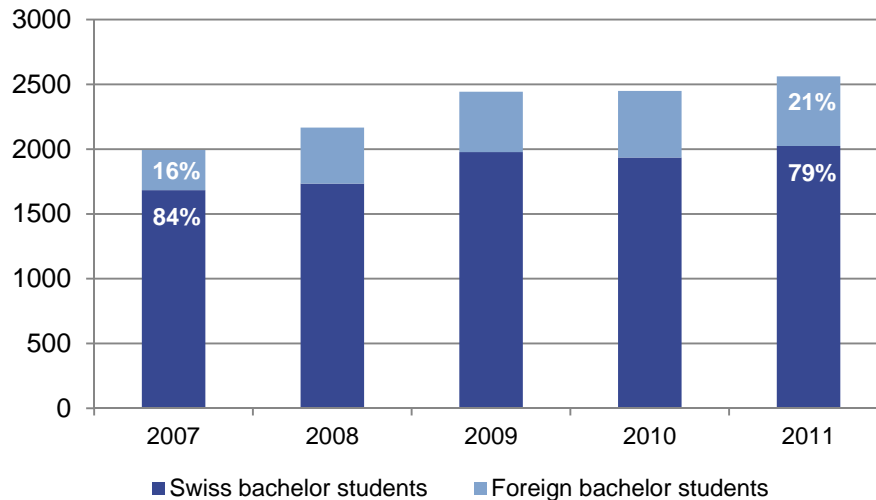
## Excellent education

- 23 bachelor and 41 master courses
- Restricted duration of study
  - Bachelor max. 5 years
  - Master max. 3 years
- Maintaining a good student-faculty ratio (in 2011: 1:40)
- Supporting excellent students with scholarships
- Building up practical and research experience
- Achieving a good business sense



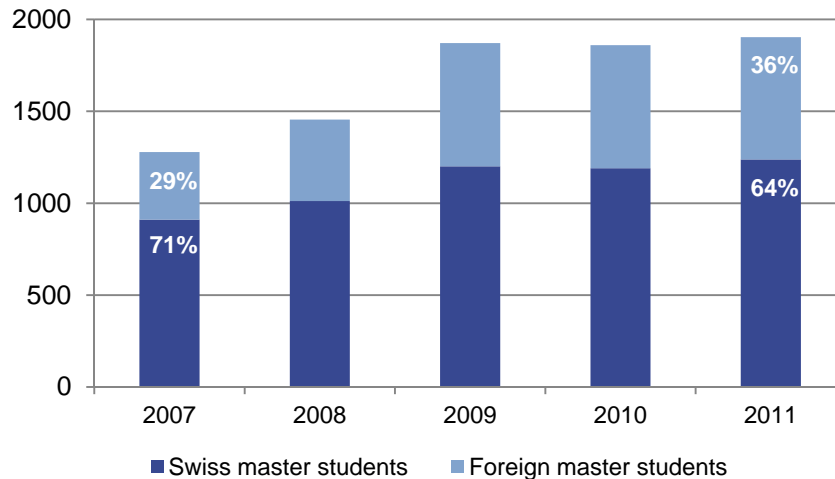
# Bachelor at ETH Zurich – an excellent theoretical basis

- 8,439 students (total)
- 2,562 new entrants (+ 4.6%)
  - Foreigners: 21%
  - Women: 32%
- Teaching language: German



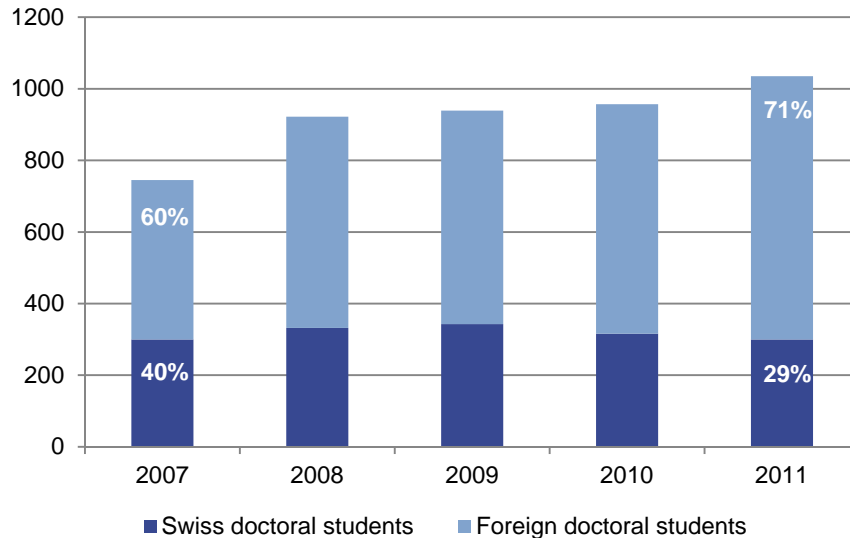
## Master at ETH Zurich – getting fit for competition

- 4,563 students (total)
- 1,904 new entrants (+ 2.4%)
  - Foreigners: 36%
  - Women: 31%
- Teaching language: English



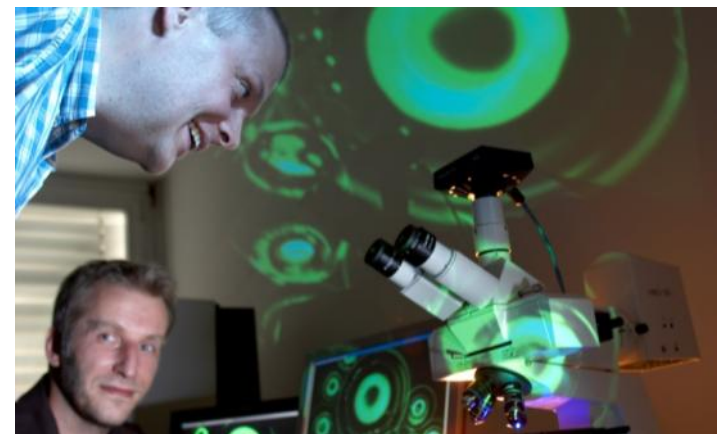
## Doctoral studies at ETH Zurich – an attractive option for qualified researchers

- 3,699 doctoral students (total)
- 1,035 new entrants (+ 8.2%)
  - Foreigners: 71%
  - Women: 30%



## Research principles

- Top infrastructure
- International faculty: the best from all over the world
- Ground-breaking fundamental research
- Freedom to take an unconventional approach
- Applying the results for the good of society
- Many international co-operations with industry and research institutions



# Centres of Competence for essential research questions

## at ETH Zurich

Center for Imaging Science and Technology (CIMST)

Energy Science Center (ESC)

Materials Research (MRC)

Micro and Nano Science Platform (MNSP)

North-South Centre

Risk Center

Socio-Economic Crises (CCSS)

World Food System

## at ETH Domain

Energy and Mobility (CCEM-CH)

Environment and Sustainability (CCES)

Materials Science (CCMX)

Biomedical Imaging (NCCBI)

## with other institutions

Climate Systems Modeling (C2SM)

History of Knowledge (CC-HK)

Metabolic Diseases (CC-SPMD)

Neuroscience (ZNZ)

Plant Science (PSC)

# Distinguished partners: examples of cooperations



## Nanotechnology Facility NETL

Partnership involving joint activities on IBM premises in Rüschlikon



## Disney Research Center Zurich

Disney Laboratory within ETH premises



## Building Technologies

Partnership involving new professorship and series of innovative research projects



## Enterprise Computing Center

Partnership involving framework agreement



## Stipendienfonds der Schweiz. Chemischen Industrie

Grants for doctoral students in chemistry



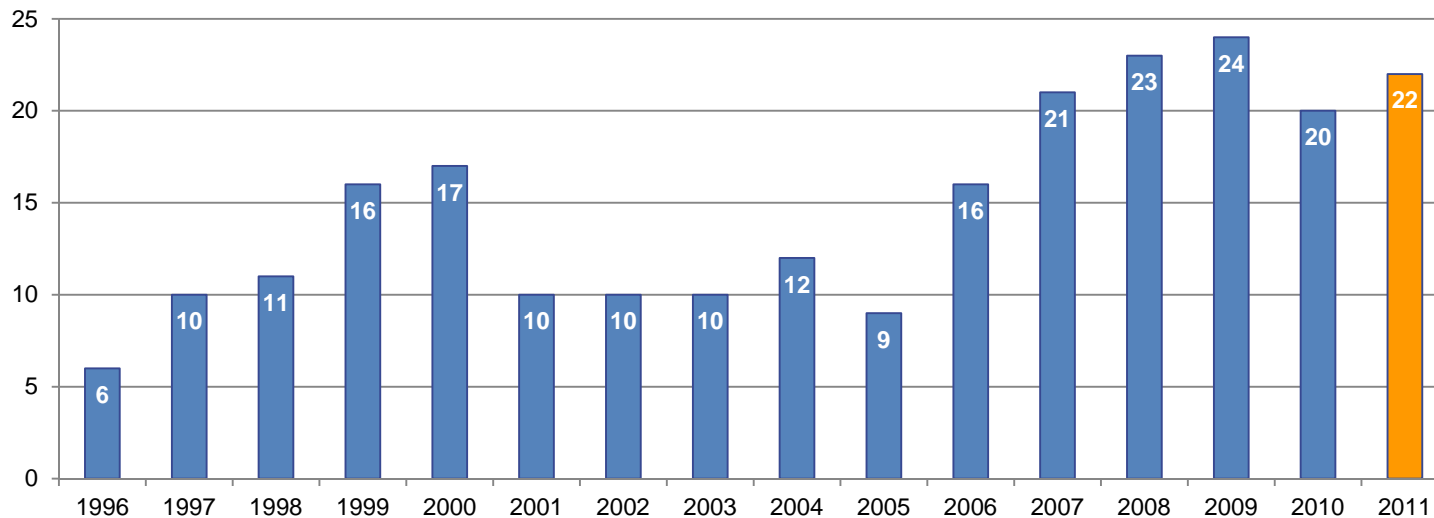
## Traineeship Programme

Practical trainings for students of ETH Zurich

# A primary resource for business

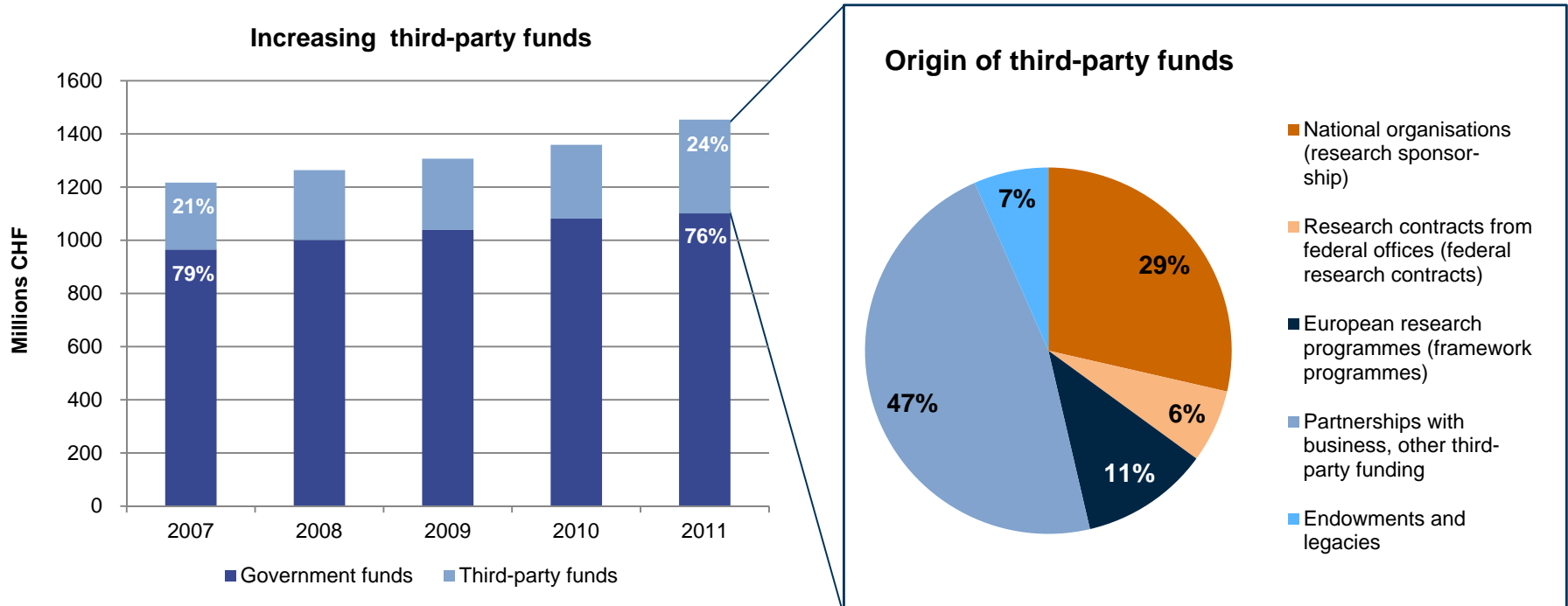
- Knowledge and technology transfer 2011
  - 22 spin-offs
  - 72 patent applications
  - 285 research agreements (> CHF 50,000)

237 spin-offs launched since 1996



# Solid block grant and increasing third-party funding

- Expenditures 2011: 1,455 million CHF
  - Third-party funds: 354 million CHF (24%)



# Intriguing science 2011



Scientifica – Zurich's Science Days



Focus Project Presentations



Department of Biosystems Open House



Laboratory for Solid State Physics



Chemistry Day



Astronomical Observatory



**THANK YOU FOR  
YOUR ATTENTION**