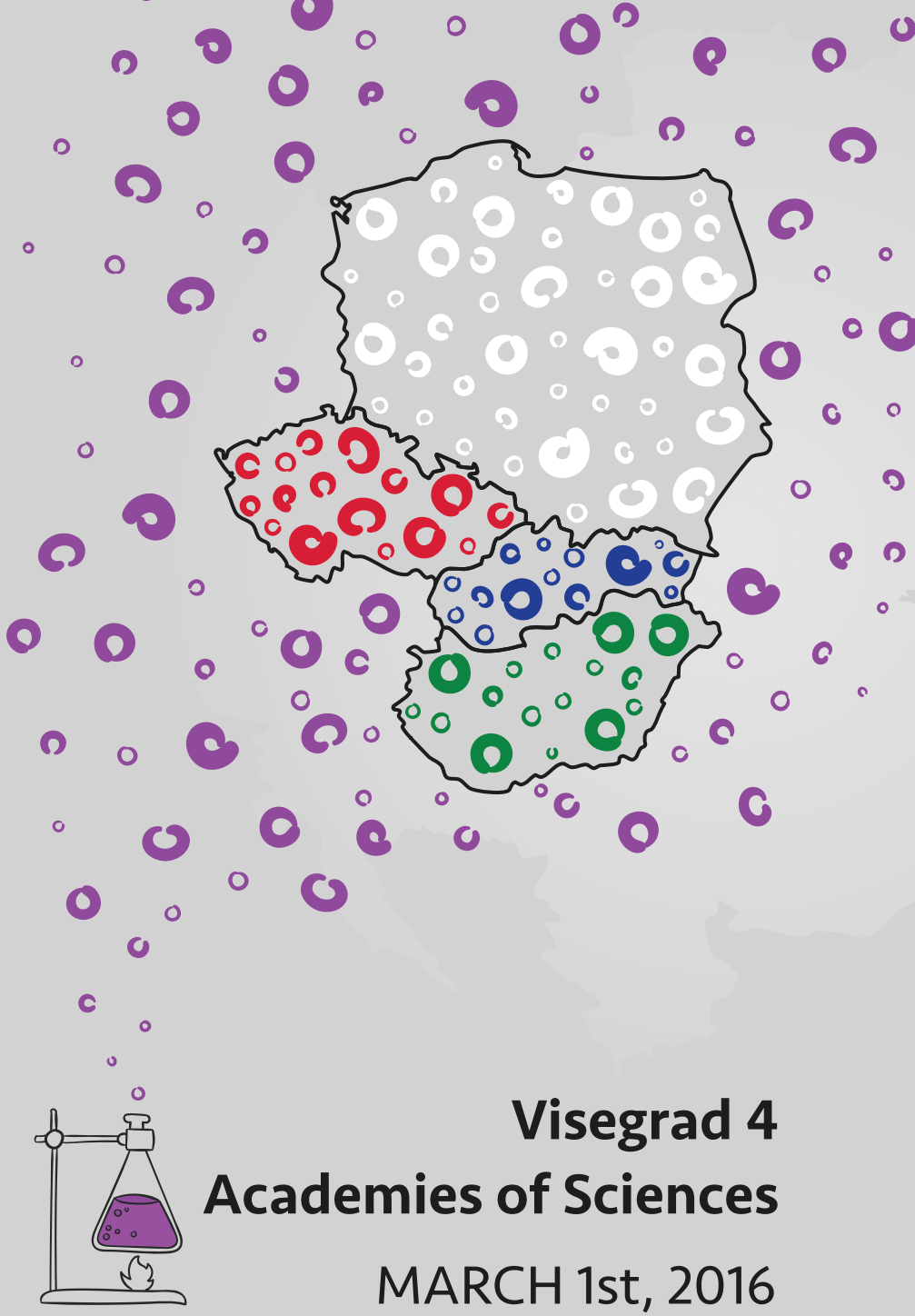
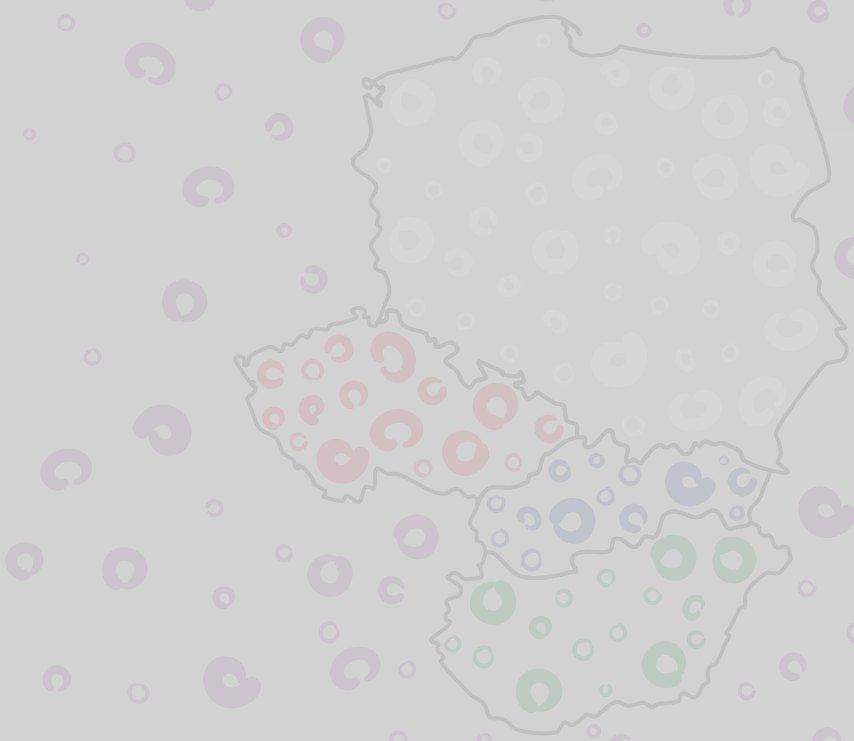


Visegrad 4
Academies of Sciences

MARCH 1st, 2016



CONTENTS

VISEGRAD GROUP **V4**

HISTORY OF V4 GROUP

The Visegrad Group was formed on 15th February 1991 at a meeting of the President of the Czechoslovak Republic, Václav Havel, the President of the Republic of Poland, Lech Wałęsa, and the Prime Minister of Hungary, József Antall. This high-level meeting in Visegrad, Hungary, created an imaginary historical arch linking the idea of this meeting to the idea of a similar meeting, which took place there in 1335 and was attended by John of Luxembourg, King of Bohemia, Charles I of Anjou (Charles Robert), King of Hungary, and Casimir III, King of Poland. The central motive of the two meetings was the desire to intensify mutual cooperation and friendship among the three Central European states. The whole V4 initiative is a result of the strong will of the central European countries to act together in various areas and to strengthen the cooperation of the region.

ACADEMIES V4

The tradition of meetings of the Academies of Sciences of V4 began in 1999. The representatives of four countries belonging to V4, the Czech Republic, Hungary, Poland and Slovakia, initiated this informal forum in order to talk about the ongoing challenges and potential chances in the scientific sector and share opinions about the integration process of V4 countries with the whole European Union.

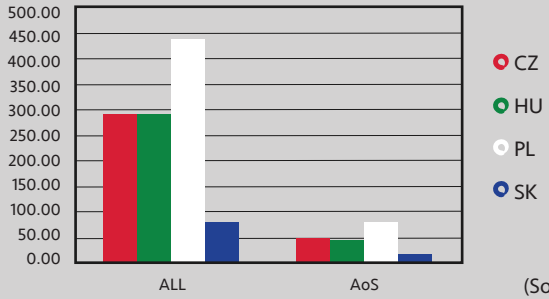
Since 1999 the chief officers of the academies of the Visegrad Four Countries have convened in an informal manner every year to discuss the timely issues and strategies associated with the practice of science and scientific institutions.

The first meeting of the Academies of V4 was organized by the Slovak Academy of Sciences in Bratislava in 2000 and covered topics such as the role of science in the integration of V4 members, common interests in the scientific area and the coordination of the Central-European scientific diplomacy. The recent meeting of the Academies of V4 was in Slovakia in Stará Lesná, where the topics like the exchange of experience in the field of regional cooperation between the Academies of Sciences of neighboring countries both from V4 and Baltic countries and programs for perspective young researchers were covered.

Academies of Sciences of the V4 countries play an important role in the European landscape. With a strong focus on research activities, human capital and modern infrastructure, the Academies of Sciences of the Visegrad 4 countries represent a significant group of stakeholders in Europe. Recent major investments in research facilities and infrastructure (mainly via ERDF) leverage the potential for future prosperous cooperations not only in the frame of Horizon 2020 projects, but also in building up strategic partnerships with European and global players.

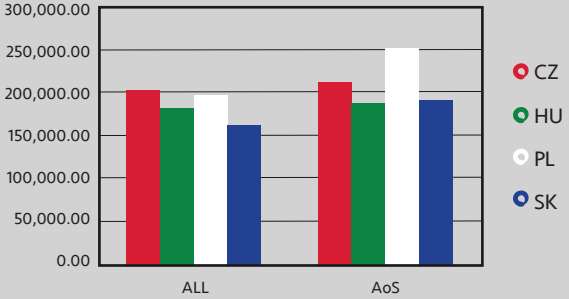
VISEGRAD GROUP IN **NUMBERS**

EC contribution - FP7



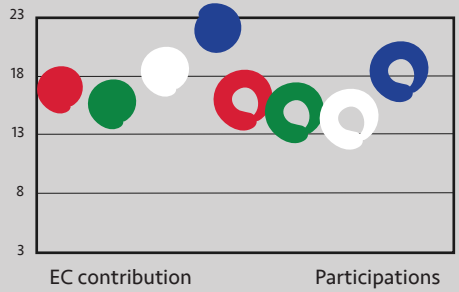
(Source: E-Corda)

EC contribution per participation - FP7



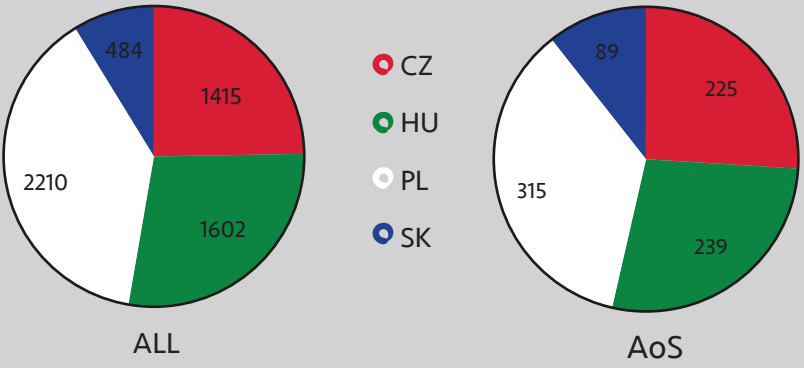
(Source: E-Corda)

Ratio in % - FP7



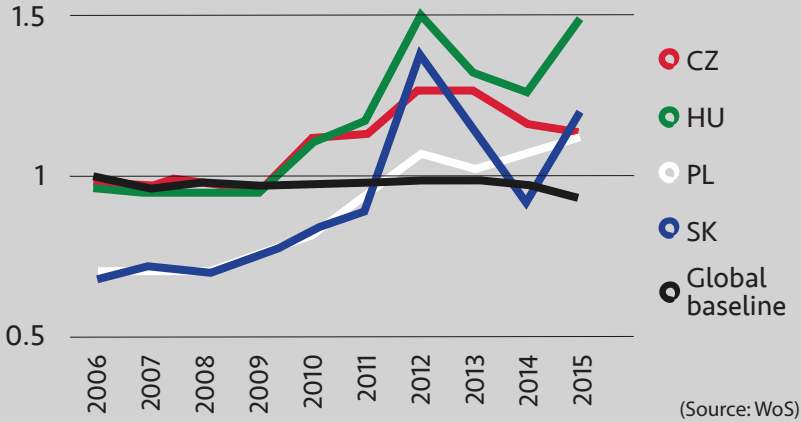
(Source: E-Corda)

Number of participations - FP7



(Source: E-Corda)

Averaged category-normalised citation impacts, 2006-2015



(Source: WoS)

Category-normalised citation impact (CNCI) is an indicator of impact irrespective of age, subject focus or document type. A CNCI value of approximately 1 represents performance at par with world average, values above 1 are considered above world average and values below 1 are considered below world average.

ACADEMY OF SCIENCES OF THE **CZECH REPUBLIC**

New ELI buildings 19.10.2015

CZ-FR team at Prague Asterix Laser System (PALS)

History of the CAS at EXPO 2015

HISTORY AND STRUCTURE

- Founded in 1890 as the Czech Academy of Sciences and Arts (the 125th anniversary in 2015)
- System of 54 research institutes conducting research in a broad range of the natural, technical and social sciences and humanities
- More information on the CAS website: http://www.avcr.cz/index.html

FINANCE

- CAS Institutes are highly competitive; 1/3 of their budget is provided from the state budget according to the results of international evaluation, 2/3 of the budget comes from other sources (national and European level)

PERSONNEL

- The CAS has over 8 000 employees of which almost 5000 are researchers
  - PhD students are an important part of personal structure (over 2 000)
  - The share of women among the researchers is 35%

Researchers accroding to age groups	
<30 years	1022
31-34 years	1787
41-50 years	812
51-60years	668
>60 years	644

- CAS total budget resources (2014) 13.4 billion CZK (ca. 165 million EUR), i. e. 0.3% of GDP
  - State budget: 4.4 billion CZK
  - Own resources: 4 billion CZK
  - Grant & project resources: 5 billion CZK

MISSION AND ACTIVITIES

- Focus mainly on basic research
- Education and training of young generation of scientists
- Partnerships with universities, foreign research organisations, and institutions of state and regional administration
- Cooperation with business and industry - transfer of knowledge and research results into practice
- Patents - 60 invention applications in the Czech Republic (CR) and 39 abroad; 44 patents in the CR and 26 abroad; 32 utility designs registered
- Support of economic competitiveness and innovation performance of the CR

Strategy AV21

- New strategy aimed at high-quality research utilizing interdisciplinary and inter-institutional synergies to solve the problems and societal challenges
- Top research in the public interest (the motto)
- 15 coordinated Research Programmes complemented by the project of Application Laboratories of the CAS (collaboration with business)
- Additional information about the Strategy at the CAS website:

http://av21.avcr.cz/miranda2/export/sitesavcr/av21/dokumenty/Strategie_eng_nahled.pdf

Week of Science and Technology Festival, in a historical building of the CAS, November 2015

EXAMPLES OF FUNDING FROM EUROPEAN RESOURCES

- Research centres and outstanding facilities funded from the European structural funds - for example:
  a) Centres headed by CAS institutes
    - ELI Beamlines (Extreme Light Infrastructure) – the unique research infrastructure with the latest laser equipment in the world
      http://www.eli-beams.eu/
    - HiLASE (High average power pulsed LASErs) – the research laser centre which is the key technological infrastructure for laser development
      http://www.hilase.cz/en/
    - BIOCEV – Biotechnology and Biomedicine Centre of the Czech Academy of Sciences and Charles University
      http://www.biocev.eu/en/
    - CZECHGLOBE (Global Change Research Institute) - research in the fields of global change, carbon cycle, and ecophysiology of production processes in plants
      http://www.czechglobe.cz/en/

  b) Centres with participation of CAS institutes
    - IT4Innovations – National Supercomputing Centre delivering research in the fields of high performance computing and embedded systems
      https://www.it4i.cz/
    - CEITEC (Central European Institute of Technology) - scientific centre in the fields of life sciences, advanced materials and technologies
      http://www.ceitec.eu/

- ERC grants: 14 researchers have been awarded (FP7: 9 grants; H2020: 5 grants)

ACADEMY OF SCIENCES OF **HUNGARY**

Hungarian Academy of Science's main building in Budapest

HISTORY

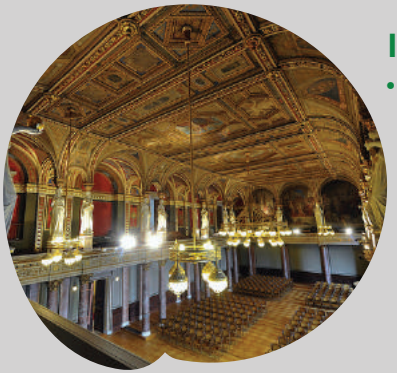
- Year of establishment: 1825

STRUCTURE

- 15 legally independent research institutions + 183 research groups, including research groups at universities co-financed by the Academy

PERSONNEL

- Number of researchers (FTE/Head count) – 2422 (in the network of MTA's research institutions), 2973 (in research groups operating at universities)
- Number of total R&D personnel (FTE/Head count) – 4090 (in the network of MTA's research institutions)
- Share of PhD students among the researchers – 30% (researchers not holding a scientific degree yet)
- Share of woman among the researchers – 33 %
- Number of ERC grantees – 47 in Hungary (until 2014) (share of MTA: 17)



Hungarian Academy of Science's main building in Budapest

INVESTING IN KNOWLEDGE

- Budget (2014) – HUF 30.966826 billion (budget earmarked for research activities)(approx. EUR 96,771,331)
  Participation in FP7 projects – 129 (total number of projects in Hungary, amount of funding: EUR 33 million, year of data collection: 2013; no data for share of MTA is available)
- Participation in H2020 projects – amount of funding: EUR 8.7 million (up to mid-2015)

IMPACT

- Amount of publications (data available for the years 2012 – 2015): in 2012: 6187; in 2013: 5970; in 2014: 5977; no data available for 2015 as yet

- Patents - figures available for the years 2010-2014:
  - Patent applications: no data available
  - Obtained patents: total number of patents obtained or sold:
    in 2010: 21
    in 2011: 21
    in 2012: 12
    in 2013: 27
    in 2014: 39
  - Foreign patents: no data available

Budapest Research Reactor operated by the Centre for Energy Research of the Hungarian Academy of Sciences

ACADEMY OF SCIENCES OF **POLAND**

HISTORY
- Year of establishment: 1952

STRUCTURE
- 69 institutes +1 (International Institute of Molecular and Cell Biology in Warsaw)

PAS Institute of Nuclear Physics, Krakow

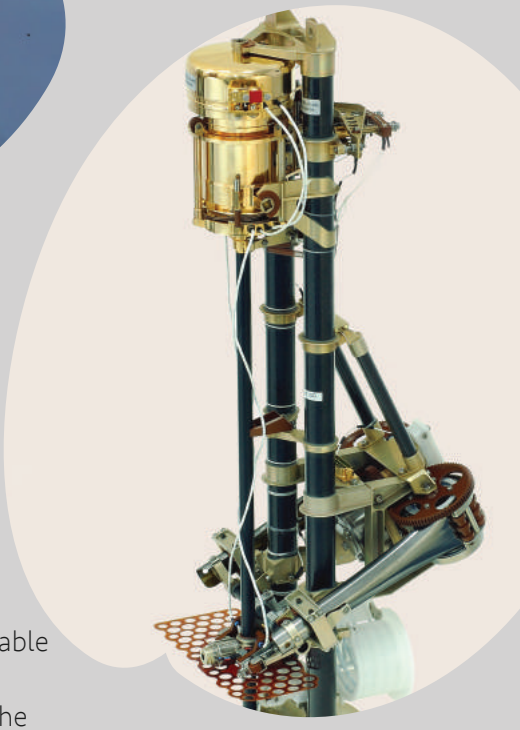
PERSONNEL
- Number of researchers (FTE/Head count) – 5202
- Number of total R&D personnel (FTE/Head count) - 7161
- Share of PhD students among the researchers – 48%
- Share of woman among the researchers – 43%
- Number of ERC grantees – 7 (FP7)

Energy Conversion and Renewable Energy Research Centre, Jabłonna

PAS Space Research Center

Hornsund Polish Polar Station, Isbjørnhamn (Norwegian island of Spitsbergen)

MUPUS penetrator, part of the European Space Agency's Rosetta mission



INVESTING IN KNOWLEDGE

- Budget (2014) – 606 937 219 PLN (135 000 000 EURO)
- Participation in FP7 projects – 314 (10.2014)
- Participation in H2020 projects - 72 (30.10.2015)

IMPACT

- Amount of publications (data available for the years 2012 – 2015): 17.764
- Patents - figures available only for the years 2010-2014:
  - Patent applications: 1440
  - Obtained patents: 1127
  - Foreign patents: 584

ACADEMY OF SCIENCES OF THE **SLOVAK REPUBLIC**

Institute of Chemistry of the Slovak Academy of Sciences, originally the main building in the SAS complex in Bratislava

HISTORY

- Founded in 1942 as the Slovak Academy of Sciences and Arts
- In 1953 transformed to the Slovak Academy of Sciences (as a part of the Czechoslovak Academy of Sciences which was established according to the Soviet model of centralisation of research institutions in Czechoslovakia)
- 1993 – self-governing state research institution

STRUCTURE

- 49 research institutes in three sections:
    - Section 1: Earth and Space Sciences, Mathematical and Physical Sciences, Engineering Sciences
    - Section 2: Medical Sciences, Biological and Chemical Sciences, Agricultural and Veterinary Sciences
    - Section 3: Historical Sciences, Humanities and Social Sciences, Arts and Culture
- Each institute is an independent legal entity (state budgetary or contributory organization, now in the process of transformation into public research organizations)

PERSONNEL

- Number of researchers: 1484 FTE (1 600 Head count)
- Number of total R&D personnel: 3 143 FTE (3 200 Head count)
- Share of PhD students among the researchers:
  - 506 PhD students (2014), that is 22% among researchers
  - Serious problem – decreasing number of PhD applicants and students during last 10 years
- Number of ERC grantees: 1 (the first and only one ERC grant in Slovakia)

Researchers accroding to age groups

Gender	Men	Women
<31 years	284	490
31-35 years	202	233
36-40 years	173	193
41-45 years	87	185
46-50 years	121	79
51-55 years	121	87
56-60 years	163	124
61-65 years	156	74
>65 years	148	47
%	50,5	49,5

Institute of Informatics of the Slovak Academy of Sciences, laboratory of electron beam lithography

RESEARCH PRIORITIES

- Advanced materials, ICT (smart technologies, the development of digital technologies, software design, processing of wood, aluminum, steel, biotechnology, nanotechnology, new materials)
- Energy, raw materials and food safety (protection of water and forest, agriculture, alternative energy source - geo, solar, biomass)
- Biomedicine and biotechnology (cancer, diseases of heart, blood vessels and brain, endocrine and metabolic disorders, infectious diseases of viral and bacterial origin, regeneration and transplantation medicine)
- Future development of the society (demographic decline, cultural identity, quality of life, climate change)

INVESTING IN KNOWLEDGE

- Budget (2014): 141,6 Mil € total
  - State budget: 58,18 Mil €
  - Grants and projects (international, national): 8,9 Mil €
    Structural funds of EU: 74,6 Mil €
  - Long-term problem – low R&D expenditures of the Slovak government (at the very bottom of the OECD countries)
- ESIF investments into RDI in the last programming period (2007-2015)
  - Total investments: 190 Mil €
  - BioMedPark (Bratislava)
  - Centre of Applied Research in New Materials and Technology Transfer (Bratislava)
  - PROMATECH – Centre for Research in Advanced Materials and Technology (Košice, East Slovakia)
  - Biotechnology Laboratory (Šarišské Michaľany, East Slovakia)
- Participation in FP7/H2020 projects:
  - FP7: 139
  - H2020: 21
- Participation in ERA-NET
  - SAS is a member in 12 ERA-NET consortia of funding organizations
  - 11 projects in 2015, supported from the SAS budget
- Participation in COST projects: 2007-2013: 62; 2014: 69; 2015: 81

IMPACT

- Patents (2007-2014)
  64 invention applications in Slovakia, 24 abroad
  40 patents in Slovakia, 29 abroad
- Publications and citations (2010-2014)

Publications	Section 1		Section 2		Section 3		Total	
2010-2014	Number	% Cited	Number	% Cited	Number	% Cited	Number	% Cited
Articles in journals	5 114	32,15	4 576	48,62	2 227	28,83	11 917	37,97
Monographs, chapters in monographs	270	29,26	409	19,80	1 723	42,83	2 402	37,51
Proceedings	1 874	8,76	1 294	3,48	2 238	21,40	5 406	12,19

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