

# KNOW 2012 in Physics.

## Expert Group Report

The KNOW contest was launched by the Ministry of Science and Higher Education following set of rules and recommendations announced in Polish *Dz.Ustaw Nr.192, poz. 1142, August 18, 2011* in the selected areas of science as defined in *Ruling of the Ministry of Science and Higher Education from August 8, 1011*.

The deadline for applications was set for March 9, 2012.

From the applications submitted and fulfilling all the formal requirements the following were assigned to the homogenous physical sciences group:

- I. **Application No.9:** "Astro Physics Group", Consortium led by the Copernicus University in Torun consisting of:
  1. Faculty of Physics, Astronomy and Informatics, Copernicus University in Toruń
  2. Copernicus Astronomical Center of the Polish Academy of Sciences in Warsaw,
  3. Space Research Center of the Polish Academy of Sciences in Warsaw
- II. **Application No.10:** "Matter—Energy—Future" Consortium led by the Stanisław Staszic AGH University of Science and Technology in Kraków consisting of:
  1. Faculty of Physics and Applied Computer Science of Stanisław Staszic AGH University of Science and Technology in Krakow
  2. Henryk Niewodniczański Institute of Nuclear Physics, Polish Academy of Sciences, in Krakow
  3. Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, in Krakow
  4. Faculty of Chemistry, Jagiellonian University in Krakow
  5. Faculty of Physics, Astronomy and Applied Computer Science Jagiellonian University in Krakow.
- III. **Application No.12:** "Warsaw Platform", Consortium led by Warsaw University of Technology consisting of:
  1. Faculty of Physics, Warsaw University of Technology
  2. Institute of Physics, Polish Academy of Sciences in Warsaw
  3. Institute of High Pressure Physics, Polish Academy of Sciences in Warsaw
- IV. **Application No.13:** Faculty of Physics of Adam Mickiewicz University in Poznań
- V. **Application No.17:** Faculty of Physics, University of Warsaw.

These applications were submitted to due refereeing procedure of the international expert group called by the Ministry of Science and Higher Education:

- **Prof. Tom Lubensky**, Christopher H. Browne Distinguished Professor, Department of Physics and Astronomy University of Pennsylvania. USA
- **Prof. Sushanta Dattagupta**, Vice-Chancellor, Visva-Bharati University, India
- **Prof. Pietro Ubertini**, Director of the Istituto di Astrofisica Spaziale e Fisica Cosmica, Italy
- **Prof. Łukasz A. Turski**, Center for Theoretical Physics, Polish Academy of Sciences, Poland (coordinator)

The group membership has been changed during the contest due to resignations submitted by:

- **Professor Robert Hołyst** from Institute of Physical Chemistry of the Polish Academy of Sciences (before the contest deadline). Professor Turski replaced Professor Hołyst on the request of the Ministry.
- **Professor Hartmut Löwen** from Heinrich Heine University in Düsseldorf (after the deadline). Professor Löwen had not participated in the refereeing procedure and was replaced by Professor Sushanta Dattagupta on the request of the Ministry.

All the referees had access to the complete documentation concerning each of the Applications 9,10,12,13,17 collected by the Ministry in, both English and Polish languages, through secure web page opened for that purpose. The Contest rule did not provide for referee groups assembling, therefore this expert group did not convene, but rather reached its conclusion after extensive exchange of electronic communication. The following report fulfills the formal requirements of the Ministry of Science and Higher Education contained in "*Wytyczne do przeprowadzenia oceny o nadaniu statusu Krajowego Naukowego Ośrodka Wiodącego*"

The expert group concluded that the KNOW Contest rules allowing simultaneous application of the Consortiums and individual Departments of the Universities were biased towards the formation of large consortiums representing divers areas of physical sciences. The rules of KNOW contest were also not very specific as to what scientific and/or other criteria should be used to compare applications spread over many different areas of physics, astronomy, physical chemistry, mathematics and even applied computer sciences

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research and teaching institutions. That lack of specific targeted rules was disadvantageous for the high quality research institutions that were not so widely spread in research areas. We move that the rules in future KNOW contests should be thoroughly rewritten with possibly different rules prepared for different science areas.

The expert group listed above analyzed thoroughly the scientific achievements of the applicant consortiums and departments, their organization structure, and their projects for future activities, particularly those associated with (possible) winning of the contest. We found that the scientific level of all applications was very high and, in most of the cases, their plans for future scientific activities were in line with current development of physical sciences on the World scale.

We decided to provide single joint ranking of the applications as we were unanimous in our individual assessments.

Our ranking is:

• **Position No. 1 Exequo :**

**Applications No. 10:** "Matter—Energy—Future"

and

**Application No.17:** Department of Physics of the University of Warsaw.

• **Position No. 2:**

**Application No.12.** "Warsaw Platform"

• **Position No.3.**

**Application No.9:** "Astro Physics Group"

• **Position No.4**

**Application No.13:** Faculty of Physics of Adam Mickiewicz University in Poznań.

If the Ministry of Science and Higher Education finds it impossible to assign two KNOW titles in physical science — we highly recommend that solution—we will assign the first place to **-Application No. 10.**

Applications No.10 and 17 were chosen for the following reasons:

- The highest level of the research in wide scope of physical sciences conducted in all the research institutions from the Consortium "Mater—Energy—Future" and in all the institutes belonging to the Physics Department of the Warsaw University, measured not

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only by the imprecise bibliometric indicators (not proper for comparing so widely different organizational structures) but predominantly by the importance of covered subjects, international collaboration and international recognition of the individual researchers employed in applying units.

- The highest level of internal collaboration (within the applying unit). This internal collaboration tailored for the purpose of achieving joint scientific success is harder to achieve in such an organizational structure as the Consortium "Mater—Energy—Future" than within the one, though very big, department as in Department of Physics of the University of Warsaw. On the other hand the Physics Department sets an example of how to manage such widely distributed research programs while consistently maintaining a homogenous educational structure. It should be emphasized that the collaboration within institutions belonging to Consortium "Mater—Energy—Future" factually existed long before the idea of KNOW contest was proclaimed. Consortium "Mater—Energy—Future" had the largest organizational structure one of any of the applicants. It should be reconsidered in the future KNOW contests whether rules should be changed to scale down the size and extent of applying units. Had the Department of Physics of the University of Warsaw combined with Warsaw Platform they would cover wider research area, and with more applied research included, than the Consortium "Mater—Energy—Future" and would have had an improved chance of winning the contest.
- The plans for the future activities and the use of not only funds but also the prestige stemming from winning the KNOW contest were clearly and consistently projected by Consortium "Mater—Energy—Future" and Department of Physics, University of Warsaw.
- We found it important to emphasize that the Consortium Astro-Physics Group is internationally very strong and their space activity is important in cutting edge technology development. Had the KNOW rules were tailored towards picking up best research consortiums in a narrower areas of physical research this Consortium would have considerable chance of winning the contest.

Signed, on behalf of Tom Lubensky, Pietro Ubertini, Sushanta Dattagupta and Łukasz A. Turski by



Łukasz A. Turski

Warszawa, May 21, 2012.

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