

**Report on the meeting**  
***“Comet formation paradigm after Rosetta. What is the  
hallmark of cometary nuclei formation in protoplanetary discs  
inherited from Rosetta?”***

Sofia (Bulgaria), June 19-23, 2017

<http://www.astro.bas.bg/comets2017/>



***Comet 2017 – 67P Sofia syle (credit: Osiris, Sofia)***

## Scientific report

The workshop, one of the main post-Rosetta scientific forums in 2017, has been organized by the Institute for Space Astrophysics and Planetology (IAPS), National Institute for Astrophysics (INAF), Italy and the Institute of Astronomy and National Astronomical Observatory (IANAO), Bulgarian Academy of Sciences (BAS).

The workshop gathered together the scientific community interested in various aspects of cometary science together with experts in planetary formation. Its aim was to discuss the state-of-the-art cometary nuclei formation paradigm taking into account the recent information coming from the Rosetta results. The interpretation of the acquired data is driving a large scale revision of our understanding of comet formation and is also leading us to reconsider some of the established concepts related to the formation and evolution of the Solar System. This, in turn, has broader implications as comet composition and formation encompasses astrophysics, astrochemistry and astrobiology. There were 22 invited talks and 15 contributed talks. format will consist of plenary sessions with contributed and invited presentations.

### Some of the most interesting topics that have been discussed:

- the formation of water on interstellar dust particles
- sulfur chemistry in prestellar cores
- O<sub>2</sub> formation mechanisms
- 67P fractal dust particles could be fossils of the protoplanetary disc
- models of the formation by impact of bilobate nuclei
- the possible onion stratification in the interior of 67P

### Statistics of the participants

- Total number of participants: 53
- Number of participants of Inclusiveness states: 6 (Bulgaria, Ukraine)
- Number of female participants: 20
- Number of male participants: 33
- Number of early career scientists: 5
- Participants from Industry: 0
- Amateur Participants: 0
- Participants from outside Europe: 4 (USA, Israel)

### Local public outreach

- An outreach event with Bulgarian public, students and representatives of the Ministry of Education and Science was held on 20th of June 2017. The event was announced by the Bulgarian Academy of Sciences website and by the Bulgarian Festival of Science. A public lecture on the following topic: *What have we learned from Rosetta about the formation of comets?* was given by Stavro Ivanovski

(IAPS/INAF, Rome). After the lecture, Maria Teresa Capria (Head of SOC), Tanyu Bonev (Head of LOC), the Project scientist of Rosetta Matt Taylor and some of the PIs of Rosetta instruments (Fabrizio Capaccioni, Alessandra Rotundi, Martin Hilchenbach, Holger Sierks) answered to the questions of the public.

- The Bulgarian official journal of science "Az Buki" published an article on the workshop. "Az Buki" is the National Publishing House that publishes the only national weekly newspaper on education and science.

<http://www.azbuki.bg/en/editions/azbuki/archive2017/newspaper262017>