



International Alexander Chizhevsky Medal for space weather and space climate

The Alexander Chizhevsky medal rewards a young researcher for major results in space weather. This year, the International Medal Committee decided to award

Dr Christina Plainaki

Christina started to model cosmic ray propagation through the Earth's magnetosphere and atmosphere as a post-graduate student in the field of space plasma physics and cosmic rays at the University of Athens. This was a preparatory work for her PhD. She immediately showed uncommon skills and maturity in her research, handling compound problems, being rigorous in her analysis, and developing solutions. Her model, first published in the Journal of Geophysical Research in 2007, constitutes a reference in understanding the development of ground level enhancements following extreme solar events.

Following her PhD thesis defence in July 2007, Dr. Plainaki moved to INAF-IFSI (which later became INAF IAPS), Italy, joining the SERENA experiment team. Christina got involved both in the experimental issues and the underlying physics. This concerns in particular the interaction between energetic ions and neutral atoms, either of exospheric origin such as at Mercury, or directly from a planetary body surface via the sputtering mechanism such as at near-Earth objects. In this new field Christina again was able to demonstrate uncommon dedication and outstanding skills.

Recently Christina extended her scientific interests to cover also another topic of planetary space weather: the effects of radiation and energetic plasma bombardment on planetary and moon icy surfaces, where phenomena such as radiolysis and photolysis dominate. This is of paramount importance in understanding the formation of tenuous atmospheres around the icy moons of giant planets, such as the Europa and Ganymede exospheres. Her model of the Europa oxygen exosphere, published in Planetary and Space Science, is now a reference and she was invited to present it at the 2013 Magnetospheres of Outer Planets International Conference.

This year Christina took the leadership in proposing to International Space Science Institute an international team to work on preparing a global unified model of Europa's exosphere, in view of the upcoming JUICE mission. Christina's proposal to ISSI was successfully selected, within the context of a severe competition, which is another recognition of her excellence in the field and her international fame, in spite of her young age.

In recognition of Christina's outstanding work on cosmic ray physics, magnetospheric physics, and planetary space weather, she was awarded this year the EGU Planetary and Solar System Sciences Division Outstanding Young Scientists Award. This prestigious European Geosciences Union award is given annually to one outstanding young scientist, highlighting his/her exceptional scientific achievements in planetary sciences.

Despite her young age, the excellence of her scientific achievements is internationally recognized and documented through a series of important publications in peer review journals: 33 refereed publications, 12 as a first author) and a significant number of invited

contributions to international conferences. Several results of Plainaki's outstanding work based on combined data analysis and development (and application) of new theoretical approaches on the coupling between relativistic SEPs and their ground-level signature (i.e. Ground Level Enhancements - GLE), have been already utilized by the international space physics and cosmic rays communities.

The committee noted that Christina has taken unexplored ways, potentially at risk, to reach a successful achievement, a major contribution to space weather science that originally lead to a better comprehension of the physics of the relativistic SEP-GLE event-coupling and to a significant improvement of SEP-modeling.

For all these reasons, the Committee decided to award Christina Plainaki with the 2014 Alexander Chizhevsky Space Weather and Space Climate medal.