Dr. Christina Kay of the Catholic University of America and NASA Goddard Space Flight Center is the recipient of this year's Alexander Chizhevsky Medal. The medal is awarded to a young researcher for outstanding achievements in space weather or space climate with an innovative approach.

Dr. Kay is receiving this medal in recognition of several accomplishments. She has developed and implemented innovative models to improve the forecast of coronal mass ejection impacts, starting with their early propagation in the lower solar corona, extending out to their detection in the solar wind. These are described in a series of well-known papers. However, she also recognized the importance of validation and characterization of a model to make it operational, so that it can be used by forecasters. For this purpose, she spearheaded efforts to implement and test these new space weather model forecasting technologies.

Another of Dr. Kay's contributions is her investigations into the role of CME impacts affecting exoplanets. Just as coronal mass ejections affect planets in our own solar system, there is a growing respect for the role of space weather in determining habitability in other planetary systems.

It is noteworthy that space weather and exoplanet studies continue the legacy of Alexander Chizhevsky. As the founder of the field of "heliobiology," Chizhevsky dedicated much of his research to understanding the impact of the Sun on Earth and biological systems. There is no doubt that he would have been fascinated by the new exoplanet studies, as we attempt to extend our knowledge of solar space weather to understand the implications for life in other star systems.

Professor Hermann J Opgenoorth is one of the major founders and leaders of the discipline of Space Weather in Europe through both his leading and important scientific research as well as his many and varied contributions to the organisation of Space Weather activities internationally.

Scientifically, Professor Hermann J Opgenoorth performed precursor research with multi-instrument arrays in the 1980s and 1990s and lead the co-ordination of such arrays in support of ESA's cornerstone mission, Cluster. His contributions to our understanding of the substorm current wedge in substorms and the three dimensional nature of this fundamental structure in geomagnetic tail dynamics paved the way to a full branch of space weather. During this work he established the first international and fully co-ordinated multi-instrument array in Scandinavia (MIRACLE), which still flourishes, and is absolutely central in many respects to European Space Weather activities to this day.

The number of international programs that Professor Hermann J.Opgenoorth has chaired or supported is so large that it is difficult to list them all without forgetting one: examples include the Cluster Ground Based Working Group, THEMIS, SuperDARN, SuperMAG, GLORIA, etc. Indeed the Cluster Ground Based Working Group is still being used as a model for how to develop space and ground co-ordinated and collaborative research, e.g. with the planned ESA and China mission, SMILE. Professor Hermann J Opgenoorth began his scientific administrative roles as the Senior Advisor for the co-ordination of solar and solar terrestrial missions at ESA, followed by the Director of solar and solar terrestrial missions, and finally Director for solar system missions. In this role, he was a founding Chair of the International Living With a Star (ILWS) programme and then the ESA representative on the ILWS Steering Committee.

Today, Professor Hermann J Opgenoorth is co-chair of the COSPAR ILWS Space Weather group, an influential member of the Expert Group on Space Weather (United Nations' Committee on peaceful Use of Outer Space) and has created recently the ESF/ESSC Space Weather Assessment and Consolidation Working Group, of which he is a co-chair.

Professor Hermann J Opgenoorth has maintained a world-leading scientific activity in parallel to his international duties. In particular, he has been successful in getting a European project funded on Extreme Space Weather at a Swedish National Contingency Agency involving the Institute of Solar Physics, Stockholm University, the IRF-Uppsala and the Swedish Defence Research Agency, FOI. His contributions have been recognised by among other things the award of International Fellowship status of the Royal Astronomical Society as well as Honorary Professor at the University of Leicester.

Professor Gombosi is a leader in space weather and planetary research, a visionary in Space Weather numerical modeling, and a pioneer of cometary plasma physics. Professor Gombosi was born and raised in Hungary. He earned his PhD in physics at the Roland Eötvös University in Budapest and joined the Central Research Institute for Physics of the Hungarian Academy of Sciences. Next, he went to Moscow where he was mentored by such giants of Soviet space science as Roald Sagdeev, Pavel Elyasberg, Albert Galeev, Konstantin Gringauz, and Vitaliy Shapiro.

At the end of 1983 Professor Gombosi moved to the University of Michigan in the United States, where he is the Rollin M. Gerstacker Professor of Engineering and the Konstantin Gringauz Distinguished University Professor of Space Science.

Since the mid 1990s Professor Gombosi has devoted much of his energy to initiating and leading a highly successful effort to develop the first generation of highperformance, physics-based, predictive models of the Sun-Earth space environment. He has led an interdisciplinary team that developed the first solution adaptive global magnetohydrodynamic model of space plasmas. This model has become the dominant workhorse for Space Weather simulations at the Community Coordinated Modeling Center.

Professor Gombosi also led his team to the creation of the BATS-R-US grid-adaptive extended magnetohydrodynamic model, a powerful and versatile numerical tool used to model the global geospace environment, the heliosphere, the solar interior and planetary magnetospheres, allowing for a smoothly unified simulation of the entire Sun to Earth space system.

Subsequently, Professor Gombosi's group developed the Space Weather Modeling Framework, a powerful computational tool that enables the space physics community to couple together a chain of models and describe the complex Sun-Earth system. This tool has been recently transitioned to NOAA's Space Weather Prediction Center and started operational Space Weather forecasting on October 1, 2016. The computational methods and simulation tools developed under the leadership of Professor Gombosi revolutionized the modeling of our space environment, put his group at the University of Michigan at the forefront of Space Weather research, and provided a vital contribution towards forecasting and mitigating the adverse Space Weather effects on technology and society.