



Das Institut für Physik

Institutsbereich Geophysik, Astrophysik und Meteorologie

lädt zu folgendem Vortrag

im Rahmen des **Astrophysikalischen Kolloquiums** ein:

"Space weather challenges for future manned Mars missions"

Dr. Jingnan Guo

University of Science and Technology of China

In recent years, space agencies such as ESA, NASA, the Chinese space agency and even private sectors have been planning human deep space exploration programs to the Moon and Mars. This requires a very timely and thorough investigation to better understand the space weather conditions and effects for such deep space activities in order to further develop mitigation strategies against the associated radiation risks on humans in space.

Radiation damage in deep space comes mainly from two sources, Galactic Cosmic Rays (GCRs) and Solar Energetic Particles (SEPs). As an omnipresent background, radiation induced by GCRs, which are modulated by solar activities, may increase the chance of long-term health consequences, such as onset of cancer, cardiovascular diseases, skin atrophy, eye cataract, leukemia, anemia, leucopenia and malfunctions of the central nervous system. [...] Specifically speaking, the radiation and particle enhancement measured at (or predicted for) Earth's vicinity may be completely different from that detected elsewhere in the heliosphere as for a Mars mission, due to the different magnetic connection and distance of Mars (or the cruise spacecraft) from the acceleration and release region of SEPs near the Sun. We highlight the utmost importance of utilizing multi-spacecraft in-situ and remote sensing observations of the Sun and the heliosphere to better understand such dynamic events and their dynamic effects across the heliosphere in particular at locations where human explorations may take place.

Date: **Wednesday November 18, 2020 - 17:00 CET (online)**

<https://unigraz.webex.com/meet/manuela.temmer>

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