

Tuesday, 16th Nov. 2021, 16:00 s.t.

TU Wien, Institut für Angewandte Physik, E134
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Yellow Tower „B“, 5th floor, SEM.R. DB gelb 05 B



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Sputtering of Mercury and Moon Analogue Material by Solar Wind Ions

In the harsh space environment, bodies are continuously exposed to a variety of impactors. The solar wind, a constant stream of ions originating from the sun is one of those. It severely alters the surface properties of planets, moons and asteroids and leads to the emission of particles due to a process called sputtering. This ejection of particles due to impingement of the solar wind is investigated in detail, focusing not only on the total emission of particles, but also on the spatial distribution of ejecta. For this purpose, a catching quartz crystal microbalance technique is used. It furthermore allows for comparison between amorphous analogue films often used for sputtering investigations with realistic, polycrystalline mineral samples. These indicate that amorphous films are well suited for sputtering experiments with planetary analogue samples.

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Influence of Roughness on Sputtering Yields of Surfaces under Ion Bombardment

In nuclear fusion devices, the first wall of the reactor is under continuous bombardment by plasma ions. One effect of this bombardment is erosion on the atomic scale, called sputtering. Especially the roughness of the irradiated materials remained a challenging property, which can affect the sputtering yield severely. To better understand this roughness effect, both experiments with a Quartz Crystal Microbalance (QCM) and simulations with the new code SPRAY were performed for samples with very different roughness. A main result was the identification of a new roughness parameter, being the mean surface inclination angle, allowing much better characterisation than other parameters like e.g., the root mean square roughness.

All interested colleagues are welcome to this seminar lecture(s) (2 x 20 min. presentations followed by discussion)

Friedrich Aumayr
(LVA Leiter und Seminar Chair)