

## Katedra fyziky Vás zve na přednášku

### *Synthesis and characterization of two-dimensional materials and thin films*

**Dr. Sebastiano Vasi, Ph.D.**

z Department of Mathematical and Computer Science, Physical Sciences and Earth Sciences, University of Messina, Italy

**Kdy:** čtvrtek **7. prosince 2023 od 13 h**

**Kde:** zasedací místnost 2.32, budova CPTO

**Anotace:** Two-dimensional materials and thin films are extremely interesting, especially for possible applications in new generation energy devices such as solar cells and batteries. In this frame, their synthesis and characterization are being studied. After an introduction about Liquid-Phase Exfoliation (LPE) assisted by microwave to produce 2D materials, and Ion Beam Sputtering (IBS), performed in collaboration with Dr. Ceccio of CAS-NPI, to obtain thin films, I will discuss characterization techniques useful to obtain structural and optical properties of such materials. For example, X-ray techniques (such as diffraction and reflectivity) are widely used both for the investigation of powders and thin films as they allow to obtain several important information. In fact, structural characteristics of materials such as crystalline quality (structure and imperfections of crystals), thickness of one or more layers deposited, density and roughness are extremely important for the realization of devices with good performances.