

Physikalisches Kolloquium



Thursday, 22.06.2023, 16:15, HS 100

Reception with coffee & cookies 16:00

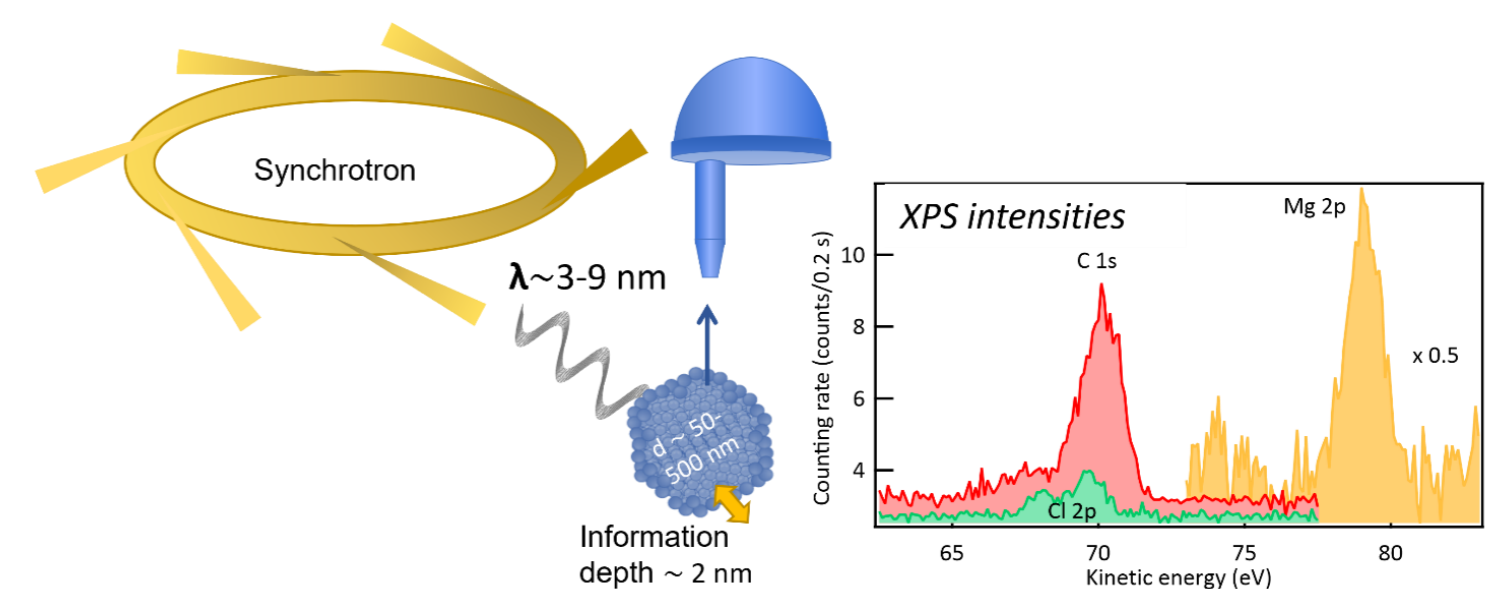
(For university staff: please bring your own cup for sustainability reasons)

Prof. Dr. Minna Patanen, University of Oulu, Finland:

X-ray analysis of nanomatter from atmospheric particles to subcellular structures

Abstract

In 1896, Wilhelm Röntgen published his work “*On a new kind of rays*” in which he described properties of mysterious rays, X-rays, which he had just discovered. He reported, e.g., that “*molecules obstruct the X-rays, the more effectively as the density of the body concerned is greater*” and “*the geometrical arrangement of the molecules might affect the action of a body upon the X-rays*”. These properties (and many more) are utilized daily both in scientific research as well as practical applications of X-rays. The brightness of available X-ray sources has kept increasing, and now the 4th generation synchrotron radiation sources and free electron lasers open new avenues for X-ray research. In this talk, I will discuss how X-ray spectroscopy is used in nanomaterials research, especially concentrating on characterization of multicomponent gas-phase nanoparticles of atmospheric relevance. Development of focusing optics and scanning stages have advanced X-ray spectromicroscopic imaging, and I discuss how this can be utilized when studying nanostructures in biological matter with natural chemical contrast.



All of you interested in physics are cordially invited!