



European XFEL Theory Seminar

Wednesday 28th November 2018, 09:30

Campus Schenefeld, XHQ, room E1.173

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X-ray diffraction from strongly bent crystals and spectroscopy of XFEL pulses

X-ray diffraction from a diamond crystal bent to a radius less than 10 cm is studied theoretically. It is shown, and proven by dynamical diffraction calculation, that the kinematical theory is sufficiently accurate for such strong bending. Anisotropic elasticity of bending is described in detail, and it is shown that the Poisson effect is especially weak for diamond. Various parameters influencing the resolution of an XFEL spectrometer based on such crystal (reflection, bent radius, thickness, wave front width, etc.) are evaluated, and applications to spectroscopy of XFEL pulses are discussed.

Host: Evgeny Gorelov