WIENER PHYSIKALISCHES KOLLOQUIUM

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Einladung zum Vortrag von

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Wave-optical X-ray Imaging for Biomedical Applications

The basic principles of x-ray image formation in radiography have remained essentially unchanged since Röntgen first discovered x-rays over a hundred years ago. The conventional approach relies on x-ray attenuation as the sole source of contrast and draws exclusively on ray or geometrical optics to describe and interpret image formation. This approach ignores another, potentially more useful source of contrast, namely the phase information. Phase-contrast imaging techniques, which can be understood using wave optics rather than ray optics, offer ways to augment or complement standard attenuation contrast by incorporating phase information.

This presentation will review the recent development of phase-contrast imaging in general, and focus particularly on our contributions to the development of grating-based x-ray phase-contrast computed tomography. A variety of experimental results will be shown that highlight the potential of this novel method for biomedical, clinical, and industrial applications. The presentation concludes with an outlook concerning the translation to pre-clincial and finally clinical practice.

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