

July 3, 2023, 1 p.m.

Seminar room at Walter-Hülse-Straße 1 & online

Synchrotron X-ray phase and dark-field imaging with medical applications

Lecture

Conventional x-ray imaging allows us to look inside an object or patient, but is best-suited to dense materials like bone or metal. Emerging methods of x-ray imaging are now providing the ability to capture weakly-attenuating materials like muscle, fat and other soft tissues, by looking at how the x-rays are refracted or change direction.

These x-ray "phase-contrast" methods open the door to a range of applications in biomedical research and medical imaging, in particular for weakly-attenuating organs like the brain or lungs. In addition, x-ray "dark-field" imaging reveals how x-rays are scattered by tiny features that are too small to be seen directly in the image, such as the air sacs in the lungs.

This talk will describe several of the new methods we have developed for x-ray phase and dark-field

imaging, and how we have applied these imaging techniques in biomedical research. These imaging studies have primarily been performed at bright synchrotron x-ray sources, which allow us to capture high-speed movies of organ function, treatment delivery and treatment response. As these projects progress, we are focusing increasingly on how quantitative measurements can be extracted from x-ray images, and how these powerful new methods can be more broadly adopted for a variety of applications.



Speaker

Prof. Dr. Kaye Morgan

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How to join:

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