

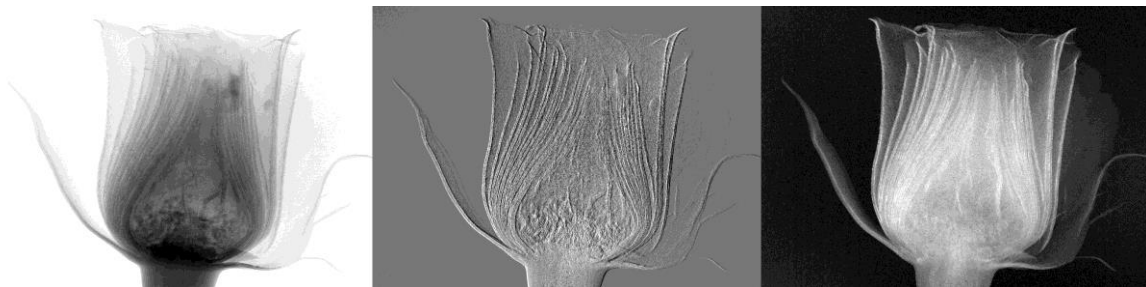
Joint seminar of the John Adams Institute for Accelerator Science and the Oxford Institute for Radiation Oncology

Thursday 29th October 2015 at 4:15pm
Fisher Room, Denys Wilkinson Building

Multi-modal phase-based x-ray imaging: detecting the undetectable

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Abstract: X-Ray Phase Contrast Imaging (XPCI) has been the subject of intensive research over the last ~20 years, because of its potential to transform all applications of X-ray imaging. In XPCI, contrast arises from refraction/interference effects instead of absorption, which leads to the visualization of features classically considered “x-ray invisible” and, more generally, to a significantly enhanced visibility of all details in an image. While until recently it was believed that XPCI was restricted to synchrotron environments, the UCL group has developed a method that works with conventional x-ray sources, hence opening the way to its translation into mainstream use, as well as making XPCI available to a potentially much wider user base. More recently, microscopic and CT implementations of the lab-based method were also developed, as well as a “dark-field” phase-based approach which provides additional, complementary information on the sample at lengthscales below the resolution of the imaging system. Moreover, when implemented with synchrotron sources, the UCL methods outperforms others in terms of phase sensitivity, a feature which is currently being investigated in more detail as it can potentially enable scientific applications previously considered inaccessible.



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