

# Università degli Studi di Trieste

## Dipartimento di Fisica

# Alumnorum Colloquia

## Sandro Olivo

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December 17, 4.30 PM - Lecture room A, F building, Physics Dept. - via Valerio, 2 – Trieste

## Seeing invisible things with x-rays



You are all familiar with x-ray procedures, e.g. what they do to you if you go to the hospital because you have fallen off your bike and think you might have broken your wrist. Actually the use of x-rays in science and society is much more widespread: the complete list would probably take up the entire length of this page. That said, technological developments on sources and detectors aside, x-ray imaging has been performed in pretty much the same way since Roentgen's discovery of x-rays 120 years ago: by exploiting differences in x-ray attenuation. X-Ray Phase Contrast Imaging (XPCI) has been the subject of intensive research over the last ~20 years, and it is widely believed that its use can 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. In this talk I will introduce the basic principles of XPCI, explain how the UCL method works, and discuss a number of possible applications – both in terms of translation to "real-world use" and enabling access to new scientific areas.



Organizzazione a cura di: M. Girardi, E. Gozzi, G. Pastore, R. Rui, E. Vesselli



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**Everyone interested in the topic is welcome to attend**

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