

SEMINAR NOTICE

*Department of Physics and Engineering Physics
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SPEAKER: Dr. Venkata Sree Charan Kuppili, Associate Scientist, Canadian Light Source

TOPIC: *Fourier Optics, Coherent Diffractive Imaging and Ptychography*

DATE: Tuesday March 26, 2024

TIME: 3:30-4:30 p.m.

PLACE: *Physics 103*

Abstract:

Ptychography is a scanning coherent diffraction imaging technique that reconstructs the two-dimensional complex transmission function of the sample from the far-field diffraction patterns obtained at well known, pre-defined scan points [1,2]. X-ray Ptychography played a crucial role in imaging wide range of technologically important samples ranging from micro-chips to biological cells, spatial resolutions as high as 17 nm were reported [3-7]. My talk will cover fundamentals of Fourier optics and motivate the audience towards understanding coherence-based imaging techniques such as Coherent Diffractive Imaging (**CDI**) and Ptychography.

References:

- [1] P. Thibault., et al., Science 379:379–383 (2008)
- [2] H. M. L. Faulkner and J. M. Rodenburg., Physical Review Letters , 93(2):23901–23903 (2004)
- [3] Y. Takahashi., et al., Physical Review B - Condensed Matter and Materials Physics , 83(21):1–5 (2011)
- [4] M. Guizar-Sicairos., et al., Optics express , 22(10):14859–14870 (2014)
- [5] A. M. Maiden., et al., Nature Communications , 4:1666–1669 (2013)
- [6] M. Dierolf., et al., New Journal of Physics , 12:1–14 (2010)
- [7] M. Guizar-Sicairos., et al., Optics Express , 19(22):21345–21357 (2011)