



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 233

Type: **Invited Speaker** / **Conférencier(ère) invité(e)**

An Overview of X-ray Photon Correlation Spectroscopy

Wednesday 11 June 2025 11:00 (30 minutes)

A new fourth generation of synchrotrons are currently coming on-line. The main improvement generated by these sources is an increase in coherence by two orders of magnitude. X-ray photon correlation spectroscopy (XPCS) is a technique that uses the coherence properties of x-rays to give detailed information about structural fluctuations and their dynamics at nanometer and shorter length scales, both in equilibrium and non-equilibrium systems. Fluctuations, Brownian motion or thermal noise are where materials store thermal energy. Fluctuations are what keeps materials in equilibrium and allows them to change in response to external changing conditions. After discussing the basis of XPCS, this talk will discuss the exciting new capabilities opened up by new sources such as fourth generation synchrotrons and x-ray free-electron lasers.

Keyword-1

x-ray

Keyword-2

coherence

Keyword-3

XPCS

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Session Classification: (DCMMP) W1-8 Frontiers of Synchrotron Based Materials Physics | Frontières de la physique des matériaux basée sur le rayonnement synchrotron (DPMCM)

Track Classification: Symposia Day (Wed June 11) / Journée de symposiums (Mercredi 11 juin): Symposia Day (DCMMP - DPMCM) - Synchrotron Physics / Physique des synchrotrons