



Joint Quantum Sciences Seminar

Wednesday, March 23, 4:00 pm

Jefferson 250

Jeroen van den Brink

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“Resonant Inelastic X-ray Scattering on high T_c cuprates and magnetic iridates”

Resonant Inelastic X-ray Scattering (RIXS) provides direct access to elementary charge, spin and orbital excitations in complex oxides. As a technique it has made tremendous progress with the advent high-brilliance synchrotron X-ray sources. From the theoretical perspective the fundamental question is to precisely which low-energy correlation functions RIXS is sensitive. Depending on the experimental RIXS setup, the measured charge dynamics can include charge-transfer, phonon, d-d and orbital excitations

[1]. The focus of this talk will be on RIXS as a probe of spin dynamics and superconducting gap of high-T_c cuprates [2-4] and the combined magnetic and orbital modes in strongly spin-orbit coupled iridium-oxides [5-10].

- [1] L. J. P. Ament, et al., Rev. Mod. Phys. 83, 705 (2011).
- [2] L. Braicovich, et al., Phys. Rev. Lett. 104, 077002 (2010).
- [3] M. P. M. Dean, et al., Nature Materials 11, 850 (2012).
- [4] P. Marra, et al., Phys. Rev. Lett. 110, 117005 (2013).
- [5] L. J. P. Ament, et al., Phys. Rev. B 84, 020403 (2011).
- [6] V. M. Katukuri, et al., Phys. Rev. B 85, 220402 (2012).
- [7] N. A. Bogdanov, et al., Phys. Rev. B 85, 235147 (2012).
- [8] J. Kim, et al., Phys. Rev. Lett. 108, 177003 (2012).
- [9] H. Gretarsson, et al., Phys. Rev. Lett. 110, 076402 (2013).
- [10] A. Lupascu, et al., Phys. Rev. Lett. 112, 147201 (2014).

Student Presentation will begin at 4:00 PM
Guest Presentation will begin at 4:30 PM
Refreshments will be provided