Seminar of Igor Žutić
University at Buffalo, USA

Thursday 2nd July, 2026 – 11:00 AM
IJL- Room 4-A014

Altermagnets: Multiferroicity, Excitons, Proximity, Topology

Anisotropic and tunable spin splitting in altermagnets provides important opportunities to explore their fundamental properties and consider applications where, in more conventional systems, it is possible to integrate spintronics, electronics, and photonics [1]. For example, anisotropic spin dynamics in altermagnets [2] could improve quantum sensing [3], while multiferroic altermagnets [4-6] offer electrical control of magnetism and switching on and off spin currents that does not require magnetization reversal [4]. By using spin space group and Bethe-Salpeter equation we classify excitons in altermagnets [7]. The strain-tunability of altermagnets is also reflected in the tunability of excitons [7]. With the growing interest to design materials and emergent phenomena through proximity effects [8] we explore the implications of the altermagnetic proximity effects in the normal and the superconducting state, including tunable topological properties [9].

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Igor Žutić is a Professor of Physics at the University at Buffalo, the State University of New York. He received PhD in theoretical physics at the University of Minnesota in 1998. His work spans topics from spin transport, superconductors, and Majorana fermions, to magnetic semiconductors, proximity effects, and two-dimensional materials. His predictions for spin devices not limited to magnetoresistance, such as spin-photodiodes, transistors, and lasers, have been experimentally realized. Igor Žutić is a fellow of the American Physical Society, a recipient of 2006 National Science Foundation CAREER Award, and 2019 State University of New York Chancellor's Award for Excellence

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