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Title:	Tracking local magnetic dynamics via high-energy charge excitations in a relativistic Mott insulator
Authors:	Singh, Yogesh (/jspui/browse?type=author&value=Singh%2C+Yogesh)
Keywords:	Energy-resolved Excitations Electron-hole Optical spectroscopy
Issue Date:	2016
Publisher:	American Physical Society
Citation:	Physical Review B,94(20).
Abstract:	We use time- and energy-resolved optical spectroscopy to investigate the coupling of electron-hole excitations to the magnetic environment in the relativistic Mott insulator Na ₂ IrO ₃ . We show that, on the picosecond time scale, the photoinjected electron-hole pairs delocalize on the hexagons of the Ir lattice via the formation of quasimolecular orbital excitations and the exchange of energy with the short-range-ordered zigzag magnetic background. The possibility of mapping the magnetic dynamics, which is characterized by typical frequencies in the THz range, onto high-energy (1–2 eV) charge excitations provides a platform to investigate, and possibly control, the dynamics of magnetic interactions in correlated materials with strong spin-orbit coupling, even in the presence of complex magnetic phases.
Description:	Only IISERM authors are available in the record.
URI:	https://journals.aps.org/prb/abstract/10.1103/PhysRevB.94.201119 (https://journals.aps.org/prb/abstract/10.1103/PhysRevB.94.201119) http://hdl.handle.net/123456789/2411 (http://hdl.handle.net/123456789/2411)
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