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Title:	Crystal-Field Splitting and Correlation Effect on the Electronic Structure of A 2 IrO 3
Authors:	Singh, Yogesh (/jspui/browse?type=author&value=Singh%2C+Yogesh)
Keywords:	Honeycomb lattice RIXS Noncubic crystal fields
Issue Date:	2013
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Citation:	Physical Review Letters, 110(7).
Abstract:	The electronic structure of the honeycomb lattice iridates Na 2 IrO 3 and Li 2 IrO 3 has been investigated using resonant inelastic x-ray scattering (RIXS). Crystal-field-split d – d excitations are resolved in the high-resolution RIXS spectra. In particular, the splitting due to noncubic crystal fields, derived from the splitting of j eff = 3 / 2 states, is much smaller than the typical spin-orbit energy scale in iridates, validating the applicability of j eff physics in A 2 IrO 3 . We also find excitonic enhancement of the particle-hole excitation gap around 0.4 eV, indicating that the nearest-neighbor Coulomb interaction could be large. These findings suggest that both Na 2 IrO 3 and Li 2 IrO 3 can be described as spin-orbit Mott insulators, similar to the square lattice iridate Sr 2 IrO 4 .
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