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Ultrafast Optical Reflectivity Study of Photo-Carrier Relaxation Dynamics in Perovskite Iridates HAO CHU, LIUYAN ZHAO, Caltech, TOM HOGAN, STEPHEN WILSON, University of California, Santa Barbara, DAVID HSIEH, Caltech, CALTECH COLLABORATION, UNIVERSITY OF CALIFORNIA, SANTA BARBARA COLLABORATION — The Ruddlesden-Popper series of perovskite iridates $Sr_{n+1}Ir_nO_{3n+1}$ lie close to a localization-delocalization boundary, evolving from a Mott-like magnetic insulator in the single layer (n=1) compound to a paramagnetic semi-metal in the infinite layer (n=∞) compound. We will discuss the insulator-to-metal transition in perovskite iridates from the point of view of time-resolved optical reflectivity measurements. This technique probes the relaxation dynamics of photo-generated carriers, which are strongly affected by the presence of a charge gap.

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