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Adler-Bell-Jackiw anomaly in Weyl semi-metals: Application to Pyrochlore Iridates VIVEK AJI, University of California at Riverside — Weyl semimetals are three dimensional analogs of graphene where the energy of the excitations are a linear function of their momentum. Pyrochlore Iridates are conjectured to be examples of such a system, with the low energy physics described by twenty four Weyl nodes. An intriguing possibility is that these materials provide a physical realization of the Adler-Bell-Jackiw anomaly. In this talk we report on the properties of pyrochlore iridates in an applied magnetic field. We find that the dispersion of the lowest landau level depends on the direction of the applied magnetic field. As a consequence the magneto-conductivity in an electric field, applied parallel to the magnetic field is highly anisotropic, providing a detectable signature of the semi-metallic state.

Vivek Aji
University of California at Riverside

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