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Optical spectroscopy study of Weyl Semimetal NbP JEREMY YANG, YUXUAN JIANG, Georgia Institute of Technology, ZHILING DUN, HAIDONG ZHOU, University of Tennesee, DMITRY SMIRNOV, National High Magnetic Field Laboratory, ZHIGANG JIANG, Georgia Institute of Technology — Weyl semimetals have attracted much interest lately because of its unique band structure, where conduction band and valence band touch at discrete points. Here, we report on optical spectroscopy study of Weyl semimetal NbP, seeking evidence for the existence of Weyl fermions. Specifically, using Raman spectroscopy we investigate the anisotropic response of Raman-active phonon modes in NbP and compare with Quantum Espresso simulations. Using magneto-infrared spectroscopy in a high magnetic field up to 17.5T, we observe several Landau level transitions and compare with the theoretical model of three-dimensional massless Dirac/Weyl fermions. By combining our data with low-temperature magneto-transport measurement, the magnetic field dispersion of Landau levels in NbP is obtained.

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