Angle-dependent Shubnikov-de Haas quantum oscillation in the topological semimetal YPtBi HYUNSOO KIM, HALYNA HODOVANETS, KEFENG WANG, JOHNPIERRE PAGLIONE, Center for Nanophysics and Advanced Materials, Department of Physics, University of Maryland, College Park, MD 20742, USA — Noncentrosymmetric cubic YPtBi is a topological semimetal with strong spin-orbit coupling and resultant $j = 3/2$ conduction fermions that make this superconductor with $T_c = 0.8$ K the first candidate superfluid with high-spin (i.e. beyond spin-triplet) Cooper pairing. To develop a realistic pairing model, we investigate the Fermi surface geometry and fundamental properties of the nontrivial conduction fermions in YPtBi using temperature- and field-dependent quantum oscillations measurements of the angle-dependent Shubnikov-de Haas (SdH) oscillations. We will present our analysis of angle-dependent frequency and amplitude of the SdH oscillations, and discuss the details of the normal state Fermiology of this exotic system.

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