Abstract Submitted
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**High field magnetotransport in high purity crystals of topological insulator $Bi_2Se_3$**[1] NICHOLAS BUTCH, PAUL SYERS, JOHNPIERRE PAGLIONE, Center for Nanophysics and Advanced Materials, Department of Physics, University of Maryland, College Park — We have synthesized crystals of high purity undoped $Bi_2Se_3$ with carrier density less than $10^{17}$ cm$^{-3}$ and high bulk mobility. Thorough characterizations of transport and optical properties in fields up to 14 T suggest a high surface scattering rate [1-3]. In a search for quantum oscillations from the surface carriers, we performed measurements of longitudinal and Hall resistance in pulsed magnetic fields of up to 60 T. Due to the as-yet poorly characterized environmental sensitivity of the $Bi_2Se_3$ surfaces, we performed on-site cleaving and application of leads under dry flowing nitrogen. The Hall measurements and temperature- and angle-dependence of the longitudinal magnetoresistance will be discussed.

[1] N. P. Butch, et al., Phys. Rev. B 81, 241301 (2010)
[2] A. B. Sushkov, et al., Phys. Rev. B 82, 125110 (2010)
[3] G. S. Jenkins, et al., Phys. Rev. B 82, 125120 (2010)

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