Please order the Electronic structure of Na3Bi near the Dirac point:optical measurement talk first and Electronic structure of Na3Bi near the Dirac point:Theory talk second in the sequence.

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Electronic structure of Na_3Bi near the Dirac point: Optical measurements[1] GREGORY S. JENKINS, A. B. SUSHKOV, R. L. CAREY, H. D. DREW, U. of Md College Park, J. KRIZAN, S. KUSHWAHA, R. CAVA, Princeton U., TAY-RONG CHANG, HORNG-TAY JENG, National Tsing Hua U., H. LIN, NUS, C. LANE, B. BARBIELLINI, A. BANSIL, Northeastern U. — The first optical characterization of Na_3Bi is reported. Reflection measurements on c-plane oriented single-crystals, over the spectral range from 3 mev to 2.5 eV and temperature ranging from 8 to 250K, show a low frequency response consistent with the low doping level $n \sim 10^{17} cm^{-1}$. The number of observed phonons in the optical spectra is >5, which eliminates the $P6_3/mmc$ symmetry since point group analysis indicates only 2 IR active phonons. A striking, strongly temperature dependent plasma edge reverses direction at $T \sim 100$K. The behavior is consistent with thermal population effects in a Dirac cone permitting an estimation of the Fermi level. The Lifshitz gap energy is reported.

[1]UMD supported by NSF (DMR-1104343), Princeton supported by the ARO MURI on topological insulators (Grant No. W911NF-12-1-0461) and ARO (W911NF-11-1-0379) and MRSEC program (NSF-DMR-0819860 and DOE DE-FG-02-05ER46200), NU supported by the U.S.D.O.E.

Gregory S. Jenkins
U. of Md College Park

Date submitted: 06 Nov 2015 Electronic form version 1.4