

## **Peculiar metallic properties of LaSb: a combined study of optical spectroscopy and band structure calculations**

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We present an optical spectroscopy study and first-principle band structure calculations on single crystal sample of LaSb. Density function calculations indicate that the compound is a semimetal with very low carrier density. Consistent with the band structural calculations, the optical reflectance measurement revealed a sharp plasma edge at low frequency, near 2800 cm<sup>-1</sup> at room temperature. Surprisingly, this plasma edge displays a substantial shift towards higher frequency with decreasing temperature. This phenomenon is rarely seen in metals. We attribute the anomalous behavior to a reduction of the effective mass, which is likely caused cooperatively by an upward shift of the chemical potential and non-parabolic band dispersions.