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**Plasmonics for Asymmetric Encapsulation of Graphene** PAULA FEKETE, Department of Physics and Nuclear Engineering, US Military Academy, West Point, NY 10996, GODFREY GUMBS, DIPENDRA DAHAL, Department of Physics and Astronomy, Hunter College of the City University of New York, 695 Park Avenue, New York, NY 10065 — We have established a self-consistent theory for calculating the plasmon dispersion relation for an encapsulated graphene monolayer that is sandwiched between two conductors which are distinctively different. The thick conductors are characterized by their bulk plasmon frequency and their surfaces are separated by a distance $d$. We present numerical results for the plasmons which are not Landau damped. We also derived analytic results for these collective modes in the long wavelength limit and demonstrate that the lowest-lying branch has a square root dependence on $d$ and obeys a linear law for the in-plane wave vector. The two higher frequency modes have dispersion relations which originate at the surface plasmon frequencies of the semi-infinite conductors and in the long wavelength limit the lowest-order corrections are proportional to the square of the in-plane wave vector.

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