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**Combined effect of doping and temperature on the anisotropy of plasmon** ANTONIOS BALASSIS, Fordham University, GODFREY GUMBS, Hunter College of the City University of New York, V. M. SILKIN, Donostia International Physics Center — We compare the plasmon dispersion relations for monolayer graphene when the sample is doped with carriers in the conduction band and the temperature is zero versus when the temperature is finite and there is no doping. Additionally, we have obtained the plasmon excitations when there is doping at finite temperature. The plasmon dispersion in the  $\Gamma M$  direction may be different in substantial ways from that along the  $\Gamma K$  direction at sufficiently high temperature and doping concentrations. The results were obtained in the random-phase approximation which employs energy bands calculated using *ab initio* density functional theory. In addition to the usual square root plasmon dispersion relation, a linear (optical) plasmon mode may appear in the  $\Gamma K$  but not the  $\Gamma M$  direction.

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