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Plasmonics of graphene laced stratified media. UPALI APARAJITA, United States Military Academy:Department of Physics and Nuclear Engineering,753 Cullum Rd, West Point, NY 10996, OLEKSIY ROSLYAK, Physics and Engineering Physics Fordham University Freeman Hall 208 Bronx, NY 10458 - 5198 — Strong overlap of fields of graphene physics and photonics drawn a lot of attention recently. Not only graphene possesses intrinsic highly tunable plasmons but a combination of grapheme with noble metal nano structures promises a variety of existing applications for conventional plasmonics , such as novel optical devices working in a broad range from THz to visible spectra. We report simulations of those devices using combination of discrete dipole approximation (DDA) and boundary element methods (BEM). While DDA is an essential tool for modeling large molecule polarizabilities and scattering the BEM provides necessary Green's function tensors when those molecules are in close proximity to the nano-structures. As an example of that technique we study electron energy loss and Raman spectra for complex molecules in presence of metal plasmon active nano particles embedded into a stratified graphene laced medium.

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