Charged impurity screening by monolayer graphene on a substrate at finite temperature ANDRII IUROV, Center for High Technology Materials, GODFREY GUMBS, Hunter college, CUNY , DANHONG HUANG, Air Force Research Laboratory, Kirtland Air Force Base — The static shielding of a charged impurity in the vicinity of a graphene layer on a substrate is investigated. Linear-response theory is employed for treating the interaction between the impurity, graphene layer and the thick conducting substrate. Our calculations involve a derivation of the inverse dielectric function which is obtained within the time-dependent self-consistent Hartree-Fock approximation. The cases we consider correspond to a gapped and gapless graphene and the effect of temperature on the static shielding. We also report on the effect on the shielding as the location of the nonmagnetic charged impurity is varied.

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