

Unlike the two-dimensional case where the eigenvalues appear in the plus and minus pair, the Neumann-Poincaré operator in three dimensions may or may not have negative eigenvalues depending on the geometry of the surface, the boundary of the domain, where the operator is defined. Recently, significant results on negative eigenvalues have been obtained. In this talk we review them. We also discuss the possible advantage of having negative eigenvalues in terms of plasmon resonance.