

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Broadband Dipole Bonding with Epsilon-near-zero Material NAI-JING DENG, KIN WAH YU, The Chinese University of Hong Kong — Epsilon-near-zero dielectrics (ENZ) is known to be responsible for static dipole levitation. Force equilibrium, or dipole bonding appears when the wavelength is comparable to the separation distance. For oscillating dipoles, the bonding position would be dependent on the dispersive dielectric responses of the ENZ plane. We propose a ENZ designing scheme, allowing dipoles with broad frequency range to be bonded simultaneously at one specific position. In the meantime, the Kramer-Kronig relation of ENZ dielectrics is not violated. The dipole mass would linearly shift the bonding position and may bring viable applications in particle filtration.

Naijing Deng
The Chinese University of Hong Kong

Date submitted: 15 Nov 2013

Electronic form version 1.4