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Enhanced Raman Scattering from Individual Semiconductor Nanocones and Nanowires[1] LINYOU CAO, BAHRAM NABET, JONATHAN SPANIER, Drexel University, DREXEL UNIVERSITY TEAM — We report strong enhancement ($\sim 10^3$) of the spontaneous Raman scattering from individual silicon nanowires and nanocones as compared with bulk Si. The observed enhancement is diameter (d), excitation-wavelength (λ_{laser}), and incident polarization state-dependent, and is explained in terms of a resonant behavior involving incident electromagnetic radiation and the structural dielectric cross-section. The variation of the Raman enhancement with d, λ_{laser} and polarization is shown to be in good agreement with model calculations of scattering from an infinite dielectric cylinder.

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