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**EELS study of plasmon excitations in LPNE aluminum nanowires**

RODOLFO LOPEZ JR, JAY SHARPING, ERIK MENKE, Univ of California - Merced — We present our current experimental investigations of plasmonic resonances of aluminum nanowire arrays. Ordered nanowires with well-defined shape and size distributions are fabricated on silicon wafers and TEM apertures using lithographically patterned nanowire electrodeposition (LPNE). The structures, which have sizes down to 40 nm in the z direction, and planar sizes varying up to 200nm, exhibit prominent and tunable plasmon resonances which are visible in EELS spectra. The electron energy loss spectra is correlated to the native oxide layer thickness as well as growth parameters of the nanowire array.

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