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Low Temperature Static Dipole Polarizability of Free Sodium Clusters with from 2 to 250 atoms ANTHONY LIANG, JOHN BOWLAN, GaTech, XIAO- SHAN XU, SHUANGE-YE YIN, WALT A. DE HEER, GaTech — The electric dipole polarizabilities of all sodium clusters Na_n were measured from the atom up to n =250 using the molecular beam deflection method. Clusters were formed in cryogenic laser vaporization source operating at a temperature of 20 K. This complete sequence of high-resolution polarizablities measurements greatly enhances previous measurements. Electronic shell effects are observed as well as several features that are not readily understood in the shell model. The asymptotic limit of the measurements appears not to converge to the bulk sodium polarizability value. The data are compared with theoretical predictions.

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