Abstract:
A cavity ring-down spectrometer designed to study optical properties of size-selected clusters on surfaces under ultrahigh vacuum (UHV) conditions is presented. Clusters are produced using a laser vaporization cluster source with typical size-selected cluster currents of \( \sim 100 \) pA. The size of the deposition area can be controlled by a focusing octopole. Using the UHV compatible mirror exchanger, it is possible to have up to ten ring-down cavities and to adjust them while in vacuum. With ten cavities it is possible to cover a continuous spectral range as broad as 600 nm. The sensitivity of the method is \( \sim 45 \) ppm, which is two orders of magnitude better than common techniques. The optical spectra of small NiN clusters.
optical response of supported size-selected clusters and surface defects in ultrahigh vacuum) cavity ring down spectrometer metal cluster ultrahigh vacuum

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