



Figure 6: A laser-vaporization source for metal clusters. The in-line design allows precise alignment of the beam. The target rod is inserted laterally which allows changing samples without breaking vacuum. The YAG laser (Continuum, Surelite I-20) pulses for 6 ns (full width at half the maximum) delivering 55 mJ at 355 nm. The laser evaporates atoms of the surface of the sample and they make a plume of hot plasma. A pulsed valve (Parker) opens for 1 ms, injecting ultra high pure helium in the small cavity where the sample sits. The evaporated atoms are cooled down by the gas and coalesce to form clusters. The gas exits the source through the nozzle, carrying the clusters along. At the exit of the nozzle there is a skimmer that communicates the first two vacuum chambers and allows only the center part of the beam to pass.