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Temperature dependence of argon excimer emission from pulsed discharge excited argon clusters MARK MASTERS, HANS SUEDHOFF, MIKE DE ARMOND, CLINT REYNOLDS, Indiana University-Purdue University Fort Wayne — Argon second continuum excimer emission is observed from a pulsed discharge excited pulsed supersonic argon expansion. The expansion nozzle consists of a temperature controlled, 15 cm long slit with a variable width (35 μm to 250 μm). The intensity of the argon excimer emission near 126 nm is investigated as a function of the width of the expansion nozzle slit, temperature of the expansion nozzle and position within the cathode-anode gap. The pressure within the nozzle has been measured as 2–4 bar and the excitation consists of a 50 ns negative current pulse of about 15kV and 700A. The observation of the emission depends directly on the size and quantity of clusters formed in the expansion. To determine the dependence of the emission upon clusters and the cluster size distribution, the mean cluster size is diminished by increasing the expansion nozzle and gas temperature. The temporal evolution of the second continuum emission and the observed spectra are presented as a function of nozzle temperature and slit width.

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