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Observation of Broadband Ultraviolet Emission From Hg_3^* WENTING CHEN, THOMAS GLAVIN, JAMES EDEN, Univ of Illinois - Urbana, LABORATORY FOR OPTICAL PHYSICS AND ENGINEERING TEAM — A previously-unobserved emission continuum, peaking at $\sim$ 380 nm, has been observed when Hg vapor is photoexcited at 248 nm (KrF laser). Attributed to the mercury trimer, Hg_3, this emission continuum has a spectral breadth (FWHM) which increases from $\sim$ 65 nm to $\sim$ 90 nm when the Hg number density rises from $\sim 10^{16}$ cm^{-3} to $\sim 2 \times 10^{19}$ cm^{-3}. Over the same interval in [Hg], the emission decay rate increases only slightly ($\sim 6 \times 10^3$ s^{-1} to $\sim 7 \times 10^3$ s^{-1}). Comparisons of the observed spectrum with theory [1] suggest that the observed continuum is the result of transitions between pairs of electronic states having a linear or equilateral triangular configuration. [1] Kitamura, Hikaru. "Theoretical potential energy surfaces for excited mercury trimers." Chemical Physics, 325(2), 207 (2006)

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