

NEW EMISSION RESONANCES IN LASER-PRODUCED PLASMAS
ON CESIUM, BARIUM AND THE LANTHANIDES

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Emission spectra of laser-produced plasmas on targets of Cs, Ba and the lanthanides have been studied systematically in the region from 40 - 300 Å. In the lighter of these elements the most characteristic feature is a strong emission maximum consisting of a mixture of continuum and discrete lines. The maximum is centered at 102 Å for cesium and moves to shorter wavelength with increasing Z. At praeceodymium a second maximum appears at longer wavelengths and with increasing Z both maxima broaden and eventually form a single continuum. The resonances are interpreted as excitation of $4d^{10} 4f^{N-9}$ to $4d 4f^{N+1}$ followed by re-emission modified by the presence of the exciting electron. The extensive continua which appear with the progressive filling of the f shell, are attributed to brehmstrahlung radiation.