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Modern sources of vacuum ultraviolet radiation: state and prospects (a review)

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The description of the physical principles and modern techniques for obtaining spontaneous vacuum ultraviolet radiation is given for three cases: the formation of linear spectra of atoms, linear spectra of multicharged ions and continuous spectra of excimer molecules. The parameters of the radiation sources are correlated with their applications – real and potential. The following schematics diagrams of the formation of vacuum ultraviolet radiation are described: H-type and E-type high frequencies discharges; discharge in a hollow cathode; glow, barrier and arc discharges; high-voltage nanosecond discharge with a sharply inhomogeneous distribution of electric field strength in gap; laser, discharge and hybrid systems for multicharged ions formation; excitation of gas targets under conditions of gyrotron plasma heating. The review covers the state of the art over the last 20 years.

Keywords: continuous spectrum, extreme ultraviolet, linear spectrum, multicharged ion spectrum, vacuum ultraviolet radiation.

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