

# A Compact Ultrafast Capillary Discharge for EUV Projection Lithography

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## Abstract

A novel type of ultrafast capillary discharge device was operated in Xenon at low pressure to obtain Extreme UV (EUV) radiation complying with the demands for future microlithography. After being triggered by means of the hollow cathode effect, the discharge starts on-axis and is then heated up effectively to a maximum temperature of 30 eV within a nanosecond timescale using a stored energy of 0.5 J. During a pulse length of 5 ns concerning the EUV emission, the transient plasma inside the capillary whose aspect ratio is much more than 10 emits mainly between 10 and 20 nm. The spectrum consists of Xe VII to Xe X line radiation.