

SPECTROSCOPY OF THE Ag-WIRE EXPLOSION IN A CLOSELY-COUPLED SOLID CAPILLARY*

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Routinely functioning capillary discharge-based soft X-ray lasers are pumped exclusively according to electron-collisional excitation pumping scheme [1] on Ne-like ions. Scaling down their wavelength has been unsuccessful because it needs homogeneously pre-filled capillary with metal-vapour-ions like Ag (lasing wavelength of Ni-like Ag ion is 14.0 nm), Cd (13.2 nm), In (12.6 nm), Sn (12.0 nm) what is difficult. Vapour injection has not yet been successful [2] and exploding wire in free space is not stable [3]. Therefore, one of possible solutions was to explode a wire in a capillary. However, in this case, similarly as at vapour injection, a conducting layer on the capillary walls is formed that from time to time has to be removed. Therefore, a wire explosion in a liquid or in a single-use closely-coupled solid-state capillary has been suggested. Such capillary can be easily prepared by casting a geopolymer around the wire. The aperture of the capillary is the same as the wire diameter.

The first experiments with Ag wire in a geopolymer have been performed. Spectra in visible, EUV ranges and electrical characteristics will be presented.

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