

Capillary Discharge Laser set-up and initial results

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An extreme ultraviolet capillary discharge laser has recently been installed at the University of York. The laser produces EUV radiation of wavelength 46.9nm, pulse durations of approximately 1.2ns with energies of up to 50 μ J. A population inversion is produced by a high voltage electrical discharge passing through an argon filled capillary tube. Within the capillary, radial pinching of the argon plasma through $\mathbf{J}\times\mathbf{B}$ force causes the pressure and temperature of the plasma to increase which causes amplification between 3p -3s (J= 0-1) transitions producing EUV radiation. The laser will be used study the physics of warm dense matter and the micro-ablation of solid targets. The commissioning and necessary developments to focus the laser to achieve a high irradiated flux will be discussed.