# Fast heating of plasma confined in sub-megatesla magnetic fields generated by paisley target

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Recently, new schemes for generation of ultrahigh magnetic fields of the order of 0.1 - 1 megatesla (MT) have been proposed in use of intense laser [1, 2]. In particular, illuminating a paisley target at laser intensities of 10^21 - 10^22 W/cm^2, generation of sub-megatesla magnetic fields has been demonstrated [2]. One of advantages of the paisley target is that the strongly magnetized plasma formed in the central region of the paisley target is exposed in a free space. Meanwhile, it has been also reported that, under megatesla-order magnetic fields, plasma ions with over-critical densities can be very effectively heated in a standing Whistler waves [3]. Here we propose a new scheme of fast and direct heating of ions in sub-megatesla magnetic fields generated by paisley target.

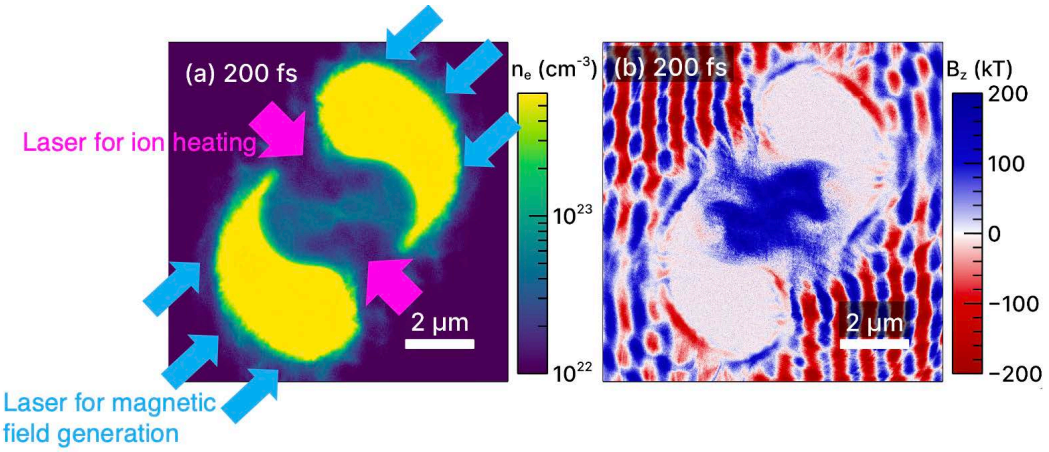


Fig.1 Schematic view of the paisley target for fast ion heating in a sub-megatesla magnetic field: (Left) electron density pattern with the configuration of laser illumination. (Right) Magnetic field pattern, obtained by two-dimension EPOCH simulation.

**References**

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