

Spatial and temporal evolution of extremely strongly laser driven magnetic reconnection

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March 22, 2012

Abstract

Spontaneous electronic (E) and magnetic (B) fields in moderate intensity laser plasmas are extremely high (10^6 G and $10^{(7-8)}$ V/m). The B fields were "frozen" and moved with high speed plasmas due to high magnetic Reynolds number. By using these fields to construct topology of non-equilibrium strongly driven magnetic reconnection is one big challenge. The experiment of extremely strongly-laser-driven

magnetic reconnection is performed. The dynamic processes of reconnection are checked with different cases which show the optimized topology structure.