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Simulation study of core heating properties for recent FIREX-I experiments[1] TOMOYUKI JOHZAKI, YUSUKE KAI, TAKUMA ENDO, Hiroshima Univ., HIDEO NAGATOMO, Institute of Laser Engineering, Osaka Univ., ATSUSHI SUNAHARA, Institute for Laser Technology, YASUHIKO SENTOKU, Institute of Laser Engineering, Osaka Univ., TOSHIHIRO TAGUCHI, Setsunan Univ., SHINSUKE FUJIOKA, HIROYUKI SHIRAGA, HIROSHI AZECHI, Institute of Laser Engineering, Osaka Univ., FIREX PROJECT TEAM — The demonstration of efficient core heating is the main purpose of FIREX-I project, where Au cone-attached solid ball CD target is used. For the guiding of fast electron beam generated by relativistic laser plasma interactions, the kilo-Tesla-class longitudinal magnetic field is applied by a capacitor-coil target and kJ-class ns-durration high power laser. In addition, to reduce the collisional effect (energy loss and scattering of fast electrons) during propagation in the Au cone tip, we introduced opened-tip cone (tipless cone). To evaluate the core heating properties, we carried out the integrated simulations, which shows the enhancement of core heating efficiency due to the magnetic guiding and opened-tip cone by a factor of three. These simulation results will be shown and be compared with the experimental results.

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