

Abstract Submitted  
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**First experimental demonstration of magnetic-field assisted fast heating of a dense plasma core** SHINSUKE FUJIOKA, SHOHEI SAKATA, SEUNG HO LEE, KAZUKI MATSUO, Institute of Laser Engineering, Osaka University, HIROSHI SAWADA, Department of Physics, University of Nevada, Reno, YUKI IWASA, KING FAI FARLEY LAW, HITOKI MORITA, SADAOKI KOJIMA, YUKI ABE, AKIRA YAO, MASAYASU HATA, Institute of Laser Engineering, Osaka University, TOMOYUKI JOHZAKI, Hiroshima University, ATSUSHI SUNAHARA, Institute for Laser Technology, TETSUO OZAKI, HITOSHI SAKAGAMI, National Institute for Fusion Science, ALESSIO MORACE, YASUNOBU ARIKAWA, AKIFUMI YOGO, HIROAKI NISHIMURA, MITSUO NAKAI, HIROYUKI SHIRAGA, YASUHIKO SENTOKU, HIDEO NAGATOMO, HIROSHI AZECHI, Institute of Laser Engineering, Osaka University, FIREX PROJECT TEAM — Fast heating of a dense plasma core by an energetic electron beam is being studied on GEKKO-LFEX laser facility. Here, we introduce a laser-driven kilo-tesla external magnetic field to guide the diverging electron beam to the dense plasma core. This involve placing a spherical target in the magnetic field, compressing it with the GEKKO-XII laser beams and then using the LFEX laser beams injected into the dense plasma to generate the electron beam which do the fast heating. Cu-K $\alpha$  emission is used to visualize transport or heating processes of a dense plasma. X-ray spectrum from a highly ionized Cu ions indicates several keV of the temperature increment induced by the LFEX.

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