

Abstract Submitted
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First electron-positron pair experiments using the Osaka LFEX laser¹ HUI CHEN, LLNL, M. NAKAI, ILE, Y. SENTOKU, U. RENO, Y. ARIKAWA, H. AZECHI, ILE, P. BEIERSDORFER, LLNL, S. FUJIOKA, ILE, C. KEANE, LLNL, S. KOJIMA, ILE, W. GOLDSTEIN, T. MORITA, LLNL, T. NAGAI, H. NISHIMURA, ILE, T. OZAKI, NIFS, J. PARK, LLNL, Y. SAKAWA, H. TAKABE, ILE, G.J. WILLIAMS, LLNL, Z. ZHANG, ILE — The first laser driven electron-positron experiment using the high power LFEX laser at the Osaka University was performed by a collaborative group from LLNL and ILE. Together with high energy electrons ($T_{hot} \sim 10$ MeV), relativistic positrons (~ 10 MeV) were observed from 1 kJ shots with laser intensity at about 10^{20} W/cm² on 1 mm thick gold target. Electron accelerations in plasmas with density below critical were shown to play an important role in producing very high energy (>20 MeV) electrons, while the number of relatively low energy electrons (~ 10 MeV) appeared to be crucial to the total number of pairs produced. Detailed experiment results and simulations will be presented in this talk (by Dr. M. Nakai).

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