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Laser acceleration with imploding plastic cylinder shell KIMINORI KONDO, Graduate School of Engineering, Osaka University, NOBUHIKO NAKANII, Osaka Univ., YOSHITAKA MORI, GPI, EISUKE MIURA, AIST, KAZUKI TSUJI, KAZUYA KIMURA, KAZUO TAKEDA, SYUJI FUKUMOCHI, Osaka Univ., MAMORU KASHIHARA, Osaka Univ, TSUYOSHI TANIMOTOI, HIROTAKA NAKAMURA, TAKAHIKO ISHIKURA, MOTONOBU TAMPO, RYOSUKE KODAMA, Osaka Univ., YONEYOSHI KITAGAWA, GPI, KUNIOKI MIMA, KAZUO TANAKA, Osaka Univ. — High energy electrons over 500 MeV were generated with Gekko XII laase system and PW laser system in ILE (Institute of Laser Engineering, Osaka University). For making a hollow plasma tube to take a long propagation distance, a plastic cylinder shell was imploded by 6 beams of Gekko XII laser system. The relativistic optical pulse yielded from PW laser system propagated through 3 mm long plasma tube with making a self-modulated laser wakefield. Thermal electrons were self-injected to this acceleration field formed by the electron plasma wave, and were accelerated to the relativistic speed. The kinetic energy distribution of these electrons was measured by the calibrated electron spectrometer (ESM). The observed accelerated electrons are over 500 MeV with a broad spectrum and reach up to 800 MeV.

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