



Contribution ID: 100

Type: Poster

## IFE/P6-12: Fast Ignition Scheme Fusion Using High-Repetition-Rate Laser

*Thursday, 11 October 2012 14:00 (4h 45m)*

Using a high-repetition-rate laser for the first time, we have performed a compact fast ignition experiment to initiate a fusion reaction and to clarify its dynamics.

A 4J/0.4-ns output of an LD-pumped high-rep. laser HAMA is divided into the imploding and heating beams, which are illuminated on double deuterated polystyrene foils separated by 100  $\mu\text{m}$ . The heating pulses heat the imploded core, emitting X-ray radiations and yielding 1000 thermal neutrons. Once heated, the core plasma maintains a temperature of few tens eV as long as the core stagnates. The result that the heating pulse transports its energy to the core plasma, is promising for promoting the fast ignition scheme laser fusion.

### Country or International Organization of Primary Author

Japan

**Primary author:** Mr KITAGAWA, Yoneyoshi (Japan)

**Co-authors:** Dr SUNAHARA, Atsushi (Institute for Laser Technology); Dr KAN, Hirofumi (Hamamatsu Photonics, K. K.); Dr AZUMA, Hirozumi (TOYOTA Central Research and Development Laboratories, Inc.); Prof. ISHII, Katsuhiro (The Graduate School for the Creation of New Photonics Industries); Prof. FUJITA, Kazuhisa (The Graduate School for the Creation of New Photonics Industries); Mr FUJINE, Manabu (Advanced Material Engineering Div., TOYOTA Motor Corporation); Mr KAKENO, Mitsutaka (TOYOTA Central Research and Development Laboratories, Inc.); Mr SATOH, Nakahiro (Hamamatsu Photonics, K. K.); Dr NAKAMURA, Naoki (Advanced Material Engineering Div., TOYOTA Motor Corporation); Mr KOMEDA, Osamu (The Graduate School for the Creation of New Photonics Industries); Dr HANAYAMA, Ryohei (The Graduate School for the Creation of New Photonics Industries); Dr OKIHARA, Shin-ichiro (The Graduate School for the Creation of New Photonics Industries); Dr KURITA, Takafumi (Hamamatsu Photonics, K. K.); Mr SEKINE, Takafumi (Hamamatsu Photonics, K. K.); Mr KONDO, Takuya (Advanced Material Engineering Div., TOYOTA Motor Corporation); Dr HIOKI, Tatsumi (TOYOTA Central Research and Development Laboratories, Inc.); Prof. MOTOHIRO, Tomoyoshi (TOYOTA Central Research and Development Laboratories, Inc.); Dr KAWASHIMA, Toshiyuki (Hamamatsu Photonics, K. K.); Mr NISHIMURA, Yasuhiko (Toyota Technical Development Corp.); Prof. SENTOKU, Yasuhiko (University of Nevada, Reno); Dr MORI, Yoshitaka (The Graduate School for the Creation of New Photonics Industries)

**Presenter:** Mr KITAGAWA, Yoneyoshi (Japan)

**Session Classification:** Poster: P6

**Track Classification:** IFE - Inertial Fusion Experiments and Theory