Abstract Submitted
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Nuclear energy without radioactivity: Laser driven block ignition of hydrogen-lithium7 HEINRICH HORA, Department of Theoretical Physics, GEORGE MILEY, Department of Nuclear Plasma and Radiological Engineering — Side-on block ignition of uncompressed solid fusion fuel by multi-petawatt-picosecond laser pulses following the Chu-Bobin scheme may be possible using a drastic anomaly of laser-plasma interaction. It is essential that the laser pulses are extremely clean (contrast ratio 10^8) to avoid relativistic self-focusing[1] as shown for DT with next available laser pulses after updating the Chu-Bobin scheme.[2] Using $p^{11}B$ (HB11) turned out to be only about ten times more difficult for laser fusion by this side-on ignition in contrast to impossible ignition by the usual spherical laser compression. Results for p-7Li fusion are similar to HB11. Controlled laser fusion energy may be produced with less radioactivity per energy than burning coal.

[1]H. Hora, J. Badziak et al. Phys. Plasmas, **14**, 072701 (2007);
[2]H. Hora, B. Malekynia et al. Appl. Phys. Lett. **93**, 011101 (2008);
[3]H. Hora, G.H. Miley et al. Laser & Part. Beams **27**, (2009) doi:10.1017/8S026303460999022X.

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