Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Proton-boron-11 fusion revisited BIN CHEN, YANG LI, HUASHENG XIE, YUANKAI PENG, BING LIU, ENN Science and Technology Development Co., Ltd., Langfang 065001, China, DIETER HOFFMANN, School of Science, Xi'an Jiaotong University, Xi'an, China; Institut fur Kernphysik, Technische Universitat Darmstadt, Germany, SCHOOL OF SCIENCE, XI'AN JIAOTONG UNIVERSITY COLLABORATION, PKU COLLABORATION, INSTITUTE OF MODERN PHYSICS, CAS COLLABORATION — We revisit the proton-boron-11 (p-B11) nuclear fusion for igniting and sustaining an idealized fusion reactor. The large radiation loss due to electron bremsstrahlung introduces a formidable challenge against harvesting net power in thermalized p-B11 plasmas. However, the recent measurement of the p-B11 cross section provides a new hope. We show that ignition and scientific breakeven can be achieved with the new data. We also discuss the conditions and parameters required for a p-B11 fusion reactor.

Bin Chen
Lawrence Livermore Natl Lab

Date submitted: 03 Jul 2019 Electronic form version 1.4