

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Characterization of the Inductively Heated Plasma Source IPG6-B MICHAEL DROPMANN, RENE LAUFER, GEORG HERDRICH, CASPER - Baylor University / IRS - University of Stuttgart, LORIN MATTHEWS, TRUELL HYDE, CASPER - Baylor University — In close collaboration between the Center for Astrophysics, Space Physics and Engineering Research (CASPER) at Baylor University, Texas, and the Institute of Space Systems (IRS) at the University of Stuttgart, Germany, two plasma facilities have been established using the Inductively heated Plasma Generator 6 (IPG6). The facility at Baylor University (IPG6-B) works at a frequency of 13.56 MHz and a maximum power of 15 kW. A vacuum pump of 160m³/h in combination with a butterfly valve allows pressure control over a wide range. Intended fields of research include basic investigation into thermo-chemistry and plasma radiation, space plasma environments and high heat fluxes e.g. those found in fusion devices or during atmospheric re-entry of spacecraft. After moving the IPG6-B facility to the Baylor Research and Innovation Collaborative (BRIC) it was placed back into operation during the summer of 2014. Initial characterization in the new lab, using a heat flux probe, Pitot probe and cavity calorimeter, has been conducted for Air, Argon and Helium. The results of this characterization are presented.

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Date submitted: 07 Jul 2014

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