Atomic hydrogen densities in expanding thermal plasmas

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Atomic Hydrogen Densities in Expanding Thermal Plasmas S. WELZEL, P.A.C. VAN ZON, R.A.J.M. VAN DEN BOS, W.E.N. VAN HARSKAMP, D.C. SCHRAM, R.A.H. ENGELN, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands — A cascaded arc produced hydrogen plasma expansion was studied by means of two photon absorption laser induced fluorescence (TALIF). In a weakly magnetised jet (up to 40 mT) a characteristic colour change from red to blue has been reported earlier. Particularly the intense plasma background radiation at the detected fluorescence transition (H_α line) hampers the application of a straightforward TALIF detection setup. Therefore a gated photomultiplier tube was used to measure and compare the TALIF signals under non- and weakly magnetised conditions. Results of the axial and radial H densities will be presented.

Stefan Welzel
s.welzel@tue.nl
Eindhoven University of Technology,
P.O. Box 513, 5600 MB Eindhoven, The Netherlands

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