

Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Anisotropy of $H\alpha$ Lines in Low Current Discharges in H_2 Discharges at High E/N VLADIMIR STOJANOVIC, ZELJKA NIKITOVIC, ZORAN PETROVIC, Institute of physics, University of Belgrade, P.O.B. 68, 11000 Belgrade, Serbia — We study anisotropy of anomalously broadened $H\alpha$ lines in a low current Townsend discharge in hydrogen. In order to achieve consistency with results of other authors we select conditions of simulation appropriate for moderate E/N (E -electric field, N -gas density) that are selected from experimental Townsend discharges in pure H_2 [1]. Best available cross section data and information on collisions with surfaces are used to predict angular distributions of heavy particles and spatial dependence of line profiles due to heavy particle excitation. Very different profiles are obtained for end on and side on observation. If experiments could select emission from different regions a very strong variation of anomalously broadened wings is observed along the axis of the discharge. Acknowledgments: Work at the Institute of Physics is supported by the MNTRS under grants 171037.

[1] A. V. Phelps, Phys. Rev.E 79, 2009, 066401.

Vladimir Stojanovic
Institute of physics, University of Belgrade,
P.O.B. 68, 11000 Belgrade, Serbia

Date submitted: 22 Jul 2011

Electronic form version 1.4