

Abstract for Poster contribution to the 2017 Physics@Veldhoven, 17 and 18 January 2017, Veldhoven, The Netherlands

Topic: 8.Plasma and fusion physics  
Preference: poster presentation

Presenting author:  
T.H.M. van de Ven, University of Technology Eindhoven, t.h.m.v.d.ven@tue.nl, +31657574634

Other authors:  
R.M. van der Horst, ruud.van.der.horst@asml.com, ASML  
C.A. de Meijere, kees.de.meijere@asml.com, ASML  
V.Y. Banine, vadim.banine@asml.com, University of Technology Eindhoven and ASML  
J. Beckers, j.beckers@tue.nl, University of Technology Eindhoven

University of Technology Eindhoven, P.O. Box 513, 5600 MB Eindhoven, The Netherlands  
ASML, De Run 6501, 5504DR Veldhoven, The Netherlands

### **Ion dynamics in plasmas induced by Extreme Ultraviolet radiation**

Extreme Ultraviolet (EUV) radiation can ionize a gas by direct photoionization. This is a common phenomenon in extraterrestrial planetary nebulae, but it has been hard to reproduce in a laboratory due to the scarceness of sources of EUV radiation. With the development of next-generation lithography tools, using EUV radiation at 13.5 nm, EUV induced plasmas are now created in the low pressure background gas in lithography tools.

EUV induced plasmas can affect exposed surfaces due to impacting ions. In this research an ion mass spectrometer, capable of measuring mass resolved energy spectra, is used to investigate the ion fluxes and ion energy distribution functions of EUV-induced plasmas in hydrogen gas. Both time averaged and time resolved measurements are performed and the influence of small admixtures is investigated.