

Abstract Submitted  
for the GEC18 Meeting of  
The American Physical Society

**MEMS based IEDF/IADF sensing: Kinetic analysis of the ion dynamics inside the sensor**<sup>1</sup> KERSTIN ROESSEL, BIRK BERGER, THOMAS MUSSENBROCK, Brandenburg University of Technology Cottbus-Senftenberg, MARCEL MELZER, CHRIS STOECKEL, SVEN ZIMMERMANN, Technical University Chemnitz — Ion energy distribution functions (IEDFs) and ion angular distribution function (IADFs) are key parameters in the context of plasma based processing of materials. This holds particularly true when knowledge-based plasma processing is demanded or preferred, rather than processing which relies on trial and error. For this purpose robust, non-perturbing, and reliable IEDF and IADF sensors are asked for. Ideal would be of course a sensor which combines both, IEDF and IADF measurements. In this contribution we present an IEDF/IADF sensor based on a MEMS (microelectromechanical systems) structure. We describe the working principle and show first experimental results. Finally, a detailed analysis of the ion dynamics based on kinetic simulation is provided. The question which is intended to be answered is whether the IEDF/IADF at the orifice of the sensor is really the same as the IEDF/IADF at the current collector.

<sup>1</sup>Financial support granted by the German Research Foundation is gratefully acknowledged

Thomas Mussenbrock  
Brandenburg University of Technology Cottbus-Senftenberg

Date submitted: 13 Jun 2018

Electronic form version 1.4