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**The plasma parameters in a high power impulse magnetron sputtering discharge (HiPIMS)** J.T. GUDMUNDSSON, P. SIGURJONSSON, Science Institute, University of Iceland, D. LUNDIN, U. HELMERSSON, IFM Materials Science, Linköping University — The time evolution of the electron density and electron temperature in a high power impulse magnetron sputtering discharge (HiPIMS) are explored with a Langmuir probe. A high-density plasma is created by applying a high power pulse with short duty cycle and low repetition frequency to a planar magnetron discharge [1]. The electron density in a HiPIMS discharge is very high  $\sim 10^{19} \text{ m}^{-3}$  in the substrate vicinity [2,3] and remains high for a while after the pulse is off. The electron energy distribution function (EEDF) in the substrate vicinity during and shortly after the pulse can be represented by a bi-Maxwellian like distribution indicating two energy groups of electrons. Here the time evolution of the two electron groups is monitored.

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