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**Experimental Analysis of Nano-structures on Anode Metal Surfaces in Atmospheric Pressure** YAO KOVACH, JOHN FOSTER, University of Michigan – Ann Arbor — Nano-structures were observed on the metal (tungsten, molybdenum) surface with helium plasma under fusion relevant plasma condition. It could bring serious problems for fusion reactors such as material erosion, dust formation and divertor lifetime etc. However, In order to solve these problems, further studies on topic of finding more unknown conditions of Nano-structure formation will be indispensable. This work focuses on the investigations of Nano-structures with its formation factors in atmospheric pressure. An electron microscopy is used to assess anode metal surface morphological changes. In particular, various Nano-structures are observed on both tungsten and stainless steel anode surfaces by the exposure to helium plasma. The characteristics of Nano-structures are documented in terms of type and size. Furthermore, material composition spectrum and mapping are used to define the status of extra growth and local area on anode metal surface with and without helium plasma effect.

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