

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Laboratory study of X-ray jets from coronal hole in the sun and initial simulation study**<sup>1</sup> MASAAMI YAMADA, ELENA BELOVA, Princeton Plasma Physics Laboratory, JOSHUA LATHAM, Princeton University — A laboratory study is being planned for plasma jets from suns coronal hole observed through X-ray by Yohkoh and Hinode satellites. A scenario for X-ray jets from coronal hole was first suggested based on magnetic reconnection by Shibata et al. from the Anemone structure [1]. A new model was developed and has been further analyzed initially by numerical simulation by the present authors. This model is based on a tilt instability of a spheromak-like configuration formed in the coronal hole of the sun. As the spheromak is elongated upward due to a slow emergence of flux from the solar surface, this half-spheromak becomes unstable to a tilt mode. As the inner configuration tilts, a current sheet develops near a tilted top null point and reconnection takes place. As the reconnected field lines expand towards the exhaust, a plasma jet is ejected with bursts. This talk presents recent results from numerical simulation which was carried out on HYM code. A laboratory experiment is being planned to verify the results. [1] Shibata, K et al, Science 318, 1591 (2007).

<sup>1</sup>Supported by DOE-OFES

Masaaki Yamada  
Princeton Plasma Physics Laboratory

Date submitted: 27 Jun 2020

Electronic form version 1.4