Abstract Submitted
for the GEC16 Meeting of
The American Physical Society

Effects of partially covered metallic wave guide on the linear microwave plasma source with TE-TEM power coupling HAEMARO KIM, MOON-KI HAN, DONG-HYUN KIM, HAE JUNE LEE, HO-JUN LEE, Pusan Natl Univ — A linear microwave plasma system with TE-TEM power coupling has been used for large scale PECVD processing. In this system, plasma acts as outer conductor of TEM waveguide and microwave power is broadly absorbed around the quartz tube. Due to large power absorption rate, plasma density decreases along the waveguide. For low input power condition, plasma column cannot reach the end of waveguide. Limiting power absorption area by simple partially covered metallic waveguide can improve plasma uniformity and make longer plasma column. When half of the plasma waveguide area is covered by metal in 450 mm long waveguide, local plasma density increases about 20 % and density non-uniformity along waveguide decreases from 13% to 7% for pressure 100 mTorr, input power 300W, Ar plasma case.

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Date submitted: 10 Jun 2016 Electronic form version 1.4