Abstract Submitted
for the GEC16 Meeting of
The American Physical Society

Plasma treatment of Seeds: effect on growth, spores and bacterial charge.[1] P. F. AMBRICO, CNR Nanotec, Bari, M. SIMEK, IPP, CAS, Prague, M. MORANO, CRSFA, Locorotondo (BA), M. AMBRICO, CNR Nanotec, Bari, A. MINAFRA, CNR, IPSP, Bari, V. PRUKNER, IPP, CAS, Prague, R. M. DE MICCOLIS ANGELINI, P. TROTTI, DiSSPA, Univ. Bari — We report on the effect of low temperature plasma treatment on tomato, basil and tobacco commercial seeds. Seeds were treated in filtered ambient air volume, surface and plasma jet DBD at atmospheric pressure Sterile agar substrate, supplemented with a nutrient and vitamin mixture, was used to allow seeds germination in sterilized sealed plastic containers. The seeds were stored in controlled environmental condition (T = 26C, cycle of 14hrs light/10hrs dark condition). Since all the procedure was performed under sterile conditions, only bacteria and fungi carried by seeds could grow. Plasma treatment significantly reduced the presence of bacterial contamination, while some fungi could resist at shortest exposures Seeds germination was then followed by time lapse photography in sterile water on 3MM Whatman paper in a closed container. The effect of plasma treatment was a faster germination time of seeds and emergence of cotyledons, able to start photosynthesis in seedlings.The plasma treated seeds were also sow in a soil/peat moss mixture. Plants were cultivated for about 40 days, showing that plasma induced a faster growth in length and weight with respect to untreated seeds.Furthermore the effect of plasma on seeds surface was studied by SEM imaging.

[1]We acknowledge SELGE (Puglia) and TACR (TA03010098).

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Date submitted: 29 Jun 2016 Electronic form version 1.4