

# Design, operation and diagnostics of PCC DBD plasma source

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**Abstract:** PCC (Plasma coagulation controller [1]) is an atmospheric pressure Dielectric Barrier Discharge (DBD) device developed by Consorzio RFX and University of Catanzaro. It is designed in order to assess the effect of DBD discharge on blood coagulation, paying particular attention to the capability of varying plasma parameters. In this work we present the details of electric and electronic design of the plasma source, discussing insulation issues and EM noise suppression.

The system is able to produce stable He and Ar plumes, though Ar plumes displays filamentation. He and Ar DBD Plasmas are characterized with passive spectroscopy measurements and spectral resolved fast imaging, in order to follow the streamer propagation and emission both in visible and UV light.

In order to clarify the effect of plasma load on the biological substrate, thermal imaging and calorimetric measurements are performed on different targets, assessing thermal and EM coupling in different conditions.

**Keywords:** plasma medicine, blood coagulation, plasma diagnostics

## 1. References

[1] De Masi, G., Gareri, C., Cordaro, L., Fassina, A., Brun, P., Zaniol, B., Cavazzana, R., Martines, E., Zuin, M., Marinaro, G., De Rosa, S., Indolfi, C. (2018). *Plasma Coagulation Controller: A Low-Power Atmospheric Plasma Source for Accelerated Blood Coagulation*. *Plasma Medicine*, 8(3):245–254.