

Abstract Submitted
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Flexible Plasma Jet Source for Biomedical Applications¹ CARLES CORBELLA ROCA, SABINE PORTAL, LI LIN, MICHAEL KEIDAR, George Washington University — A new plasma source design that merges characteristics of capacitive dielectric barrier discharge (DBD) and cold atmospheric plasma jet (CAPJ) is presented. The DBD system consists of a porous ceramic material comprised between two planar electrodes. The supply of He flow, in combination with a sinusoidal voltage of ≈ 5 kV in amplitude and 12.5 kHz in frequency, provides a streamer that propagates beyond the DBD system. The plasma jet system can adopt different shapes with the aim of uniform surface treatment of 3D objects. Aspects like CAPJ extension, performance and lifetime of the plasma device are discussed in this paper. The composition and discharge parameters of the CAPJ are characterized by means of optical plasma diagnostics. Finally, we consider applications in plasma-based cancer surgery, as for example treatment of surgical margins. This novel source is also suitable for situations where plasma parameter adaptation to the environment (atmosphere and target surface) are required.

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