

**CONTROL OF GUIDED STREAMER PROPAGATION  
AND INTERACTION WITH SUBSTRATE IN HELIUM  
ATMOSPHERIC PRESSURE PLASMA JET**

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A control dynamics of the streamer development in atmospheric pressure plasma jets could be a basis in the design of adaptive plasma jets. In the report, the control dynamics of the guided streamer development in helium atmospheric pressure plasma jets near the surface is demonstrated.

The discharge system was as in (Pinchuk et al. 2021 i). A high-voltage tailoring signal was applied to the inner electrode, also as in (Pinchuk et al. 2021 i). Helium flow rates were chosen at 7 l/min. Accordingly (Pinchuk et al. 2021 ii), the flow rate corresponds to the stepwise propagation of the guided streamer.

The jet photo and development process of the guided streamer are shown in Fig. 1.

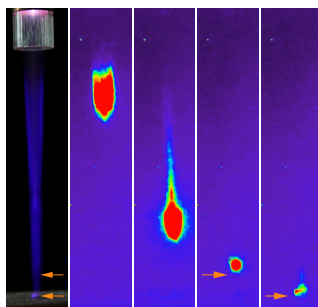


Figure 1: A soft touch of guided streamer to artificial skin steeping by physiologic saline: intermediate stop position and surface are marked by arrows.

It was demonstrated that by varying the voltage amplitude, duty cycle, and voltage waveform, the dynamics of the streamer can be controlled, stopping for a certain time the propagation of the streamer near the target.

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### References

- Pinchuk M., et al. : 2021, (i) *Scientific Reports*, **11**, doi 10.1038/s41598-021-96468-4.  
Pinchuk M., et al. : 2021, (ii) *Applied Physics Letters* **119**, 054103, doi 10.1063/5.0053672.