

Abstract Submitted
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A novel self-excited oscillator as RF amplifier for capacitive discharge at atmospheric pressure XIANGYU XU, YINGQI MA, YI ZHOU, YU WANG, Academy of Opto-electronics, Chinese Academy of Sciences, ACADEMY OF OPTO-ELECTRONICS, CHINESE ACADEMY OF SCIENCES TEAM — A novel self-excited oscillator was developed for exciting atmospheric pressure plasma via capacitive-discharge way. The oscillator was dominated by a RF transformer combined with a feedback inductor. The frequency range can be tuned from 1 to 15 MHz by changing the values of the resonant capacitor and the feedback inductor. The optimum output power was determined by the capacitive-discharge plasma's volume and the maximum value was about 80 W. By square-wave frequency modulation of the DC supply, the mode of filament discharge or glow discharge was successfully controlled by the oscillator excitation. The developed oscillator can be used for atmospheric pressure plasma for small volume and small power device applications, such as plasma jet, flat capacitor discharge, etc.

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