

Abstract Submitted  
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**A high efficiency resonant UHF plasma generator for electric propulsion** THIERY PIERRE, CNRS — A plasma generator is currently developed based on UHF ionization in xenon gas at reduced atmospheric pressure. The main characteristic is the use of a quarter-wave wire resonator, consisting in a copper wire, 7 centimeters long, placed at a fixed distance (6 millimeters) over a copper ground plate. One end of the wire is grounded and the other end forms a small plate (5 x 5 millimeters) facing the grounded plate. The UHF excitation is made at a properly chosen distance from the grounded end of the wire. The resonance of the system is checked using a microwave network analyzer. A quality factor  $Q$  of about 200 is easily obtained. The excitation of the resonant system using a low power generator (about 5 watts CW) leads to the creation of an intense electric field in the interelectrode gap. The ionization is obtained routinely at a pressure of 0.5 atm. The system is applied to electric propulsion inserting a very high transparency stainless grid (80% transparency) in order to extract ions from the mini-plasma. The system is under development in order to optimize the ion flux extracted from the UHF generator.

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