ANALYTICAL SOLUTION FOR SPACE CHARGE LIMITED CURRENT OF MAGNETRON

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1. Introduction

In high power microwave diode design, the space charge limited current is important because of its relation to the diode impedance, and the information of virtual cathode. Although the langmuir-blodgett law, as a numerical solution, is helpful, a simple functional expression would be more convenient for practical research.

2. Importance of work

In this work, analytical solution for space charge limited current in collisionless, electron free sheaths are given for a cylindrical geometries. Constant current and current density are assumed. Until now, the problem of space charge limited current has not been solved either, directly in terms of series expansion, or numerically, for cylindrical objects. analytical result show that the space charge limited current is; directly proportional to the relativistic factor, the radius of the gab, and inversely proportional to the square of the probe radius, the cathode radius for specific aspect ratio

3. Acknowledgments

4. References

For example
1- J.W. Lunginsland and et.al 2002
2- R.A.Miller 1955
3- Xupeng chen and et.al 2004
4- Debabrata Biswas and et.al 2008
5- .Langmuir and et.al 1923