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Characterization of microwave produced plasma

Abstract

Sterilization of medical equipment and devices is a subject of major challenge and concern. A variety of chemical disinfectants as well as the use of ultraviolet light or fogging with H₂O₂ vapour is employed for disinfection / sterilization; however they have limitations in terms of efficacy, environmental impact, clinical downtime, etc. Low-temperature plasma sterilization is a promising method for effectively reducing pathogenic load and can potentially be used in disinfection of medical equipment and protective gears to increase their reusability. This novel plasma sterilization technique has been studied to reduce high numbers of bacterial infections and is more efficient than conventional disinfection methods. Current project proposal aims at characterization of the plasma produced using a novel microwave planar antenna using different diagnostic tools like double Langmuir probe, UV probe, Optical Emission Spectroscopy etc. The student will work in the plasma sterilization laboratory.

Scope of work:

- Plasma experiments at different pressures and gas compositions
- Analysis of data and interpretation

Academic Project Requirements:

- 1) Required No. of student(s) for academic project: One**
- 2) Name of course with branch/discipline: Final year M. Tech. (Electronics/Electrical)**
- 3) Academic Project duration:**
 - (a) Total academic project duration: 9 – 12 Months**
 - (b) Student's presence at IPR for academic project work: Three Full working Days per week**

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