

Tipo di tesi: Laurea Magistrale

Corso di Laurea: Physics

Tipologia: Analisi dati, Modellistica

Titolo della tesi: Comparison of the experimental data with the BIRD model outcomings.

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Argomento della tesi:

The development of the neutral particle injector for the heating of thermonuclear plasmas in the ITER experiment, presently under construction, requires a thorough study of the high voltage holding characteristics of a negative ion electrostatic accelerator. In particular, the basic physical origin of the observed vacuum arcing is still a matter of debate. With the aim to deepen the comprehension of these phenomena, two experimental devices have been realized at Consorzio RFX: HVPTF (**H**igh-**V**oltage-**P**adova-**T**est-**F**acility) and HVSGTF (**H**igh-**V**oltage-**S**hort-**G**ap-**T**est-**F**acility). The last one was designed to verify and/or improve a recent first-principles theoretical model – BIRD model (**B**reakdown **I**nduced by **R**upture of **D**ielectric layer) - which traces the breakdown to the emission of electrons by a dielectric cathodic surface.

After familiarizing with the theoretical model, the present thesis focuses on the study of HVSGTF experimental data, in order to compare them with the predictions of the BIRD model as well as to provide important clues on possible developments.

Competenze richieste:

Basic knowledge of data analysis and programming tools (e.g. matlab and/or similar)

Data della proposta:16/06/21

Stato: non assegnata

Laureando/a: