

- **Tipo di tesi:** Tesi Triennale
- **Corso di Laurea:** Fisica
- **Tipologia:** sperimentale
- **Titolo della tesi:** Characterisation of CRISP RF ion source
- **Proponente (Tutor):** C. Poggi, M. Fadone
- **Relatore Accademico:** G. Serianni
- **Capogruppo:** E. Martines
- **Argomento della tesi:** Negative hydrogen Neutral Beam Injector (NBI) are the workhorses of future fusion reactors, such as ITER, where they are foreseen to deliver up to 33 MW of power to heat the fusion plasma. The negative hydrogen ions are extracted from a plasma, which, in the case of ITER NBIs, will be generated from an RF discharge. Understanding the properties of RF plasmas is crucial to optimize these devices, and various activities are currently ongoing at Consorzio RFX.

CRISP (Compact RF Ion Source Prototype) is a small RF ion source for the extraction and acceleration of He⁺ ions. A helium plasma is generated inside a Pyrex tube by means of a commercial 100W RF generator, connected to a coupling antenna. Plasma density is of the order of 10^{16} - 10^{17} m⁻³, with electron temperature between 5 and 10 eV, and depends on the coupling of RF power with plasma. The student will actively contribute to the experimental campaigns on CRISP, performing electrical measurements of the transmission line and Langmuir probe measurements of plasma parameters to characterize the ion source.

- **Competenze richieste** (se necessarie)
- **Data della proposta:** 14/01/2020
- **Stato:** non assegnata