Curriculum Vitae

Rémi J. Dumont (29 years old, French citizen)

Plasma physicist

RF waves in hot plasmas - Kinetic and Wave codes
Data analysis of tokamak experiments

Degrees and Positions

Currently	**Permanent Researcher** (Plasma physics & thermonuclear fusion) **Main research topic:** Plasma-Wave interactions in fusion plasmas *CEA Cadarache (France)*
2001-2003	**Post-doctoral contract** (Plasma physics & thermonuclear fusion) **Main Research subject:** Full-Wave Modeling of RF waves in fusion plasmas *Princeton University (USA)*
1997-2001	**PhD Thesis** (Plasma physics & thermonuclear fusion) **Title:** Current profile control by electron cyclotron waves in tokamaks *CEA Cadarache (France)* Defended on July 3rd, 2001
1996-1997	**Post-graduate degree** - Plasma Physics **Project:** EC Heating and Current Drive scenarios studies *Université Henri Poincaré, Nancy I (France)*
1995-1996	**Master's degree** - Physics **Project:** Pulse reflectometry in a tokamak plasma *L.P.M.I., Université Henri Poincaré, Nancy I (France)*
1994-1995	**Bachelor's degree** - Physics *Université Henri Poincaré, Nancy I (France)*

Research experience

- Post-doctoral contract at **Princeton University (USA)**

  Research subject: *Full-Wave modeling of radiofrequency waves in fusion plasmas*

  - Analytical developement of the tools for the full-wave description of the effects of RF waves in hot plasmas, in the framework of the *SciDAC* national project.
  - Developement of the numerical parallel codes describing these effects.
  - Comparison with approximate methods and experimental observations.
  - Exploitation of these tools to optimize the physical techniques associated with RF waves on fusion machines.

- 3 years at **CEA Cadarache (France)**

  PhD Thesis: *Current profile control by electron cyclotron waves in tokamaks.*

  - Theoretical study of the electron cyclotron (EC) waves polarization in hot plasmas.
  - Extensive use and development of Ray Tracing, Fokker-Planck and Transport codes.
  - Development of a self consistent Kinetic + Transport numerical model for the description of scenarios using combined lower hybrid (LH) and EC waves.
  - Preparation, realization and analysis of EC heating and current drive experiments in Tore Supra.
  - Analysis and modeling of LH-EC discharges realized on the FTU tokamak (Italy) in the framework of an international collaboration.

Research experience (continued)

- 2 months at **ENEA Frascati (Italy)**

  Mission: *Combined lower hybrid and electron cyclotron experiments on the FTU tokamak*

  - Kinetic + Transport modeling of LH current drive experiments in FTU.
  - Experimental study of LH-EC discharges realized on FTU.

- 10 months at **CEA/DAM Bruyères-le-Châtel (France)**

  Training period: *Whistler-plasma interaction and radial diffusion in Van Allen belts*

  - Analytical development of a model for the dynamic description of plasma-wave interaction in Van Allen belts.
  - Implementation of the related modules in a pre-existing kinetic code, with special effort devoted to computational performance.

Additional skills

- Summer lecturer at Princeton University (*Electromagnetism, Plasma Physics*)
- Referee for "Physics of Plasmas"
- High performance computing methods (vectorial & parallel architectures)
- Unix systems (Linux, BSD, Solaris) and networks

  Several languages (Fortran, C, Matlab, Perl, Python, LaTeX)

References

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Languages

- **French:** mother tongue
- **English:** fluent
- **German, Italian:** basic

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