

## PostDoc: Metamaterial Wireless Localization

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### General information

Reference: UMR6164-MARDEL-003  
Workplace: RENNES  
Type of Contract: Fixed-Term-Contract Scientist  
Contract Period: 12 months (extension possible)  
Expected date of employment: 1 September 2023  
Proportion of work: Full time  
Salary: Between 2800 and 4408 € gross per month (depending on experience)  
Desired level of education: PhD  
Experience required: Indifferent

### Missions

Conduct an ambitious academic project on metamaterial-based wireless localization.

### Activities

- Conception, prototyping and evaluation of metamaterials for wireless localization.
- Implementation of signal-processing protocols for wireless localization.
- Numerical modelling of wireless localization systems.
- Writing of scientific publications.
- Presentations at international conferences.

### Skills

- PhD in wave physics, electrical engineering, signal processing, or related discipline (photonics, acoustics, ...).
- Experience in the field of wave physics.
- Experience in the field of metamaterials (in a board sense).
- Experience in the field of signal processing (compressed sensing, deep learning, ...).
- Experience with source and/or object localization.
- Experimental experience in the microwave domain (desired).
- Knowledge in the field of artificial intelligence (desired).
- Ability to synthesize results in written and oral formats.
- Ability to conduct oral presentations.
- Good command of the English language (reading, writing, speaking).
- Ability to write, formulate scientific projects, publish and exploit scientific results.
- Ability to conduct collaborative work and teamwork.
- Autonomy, organizational skills and briefing skills.

### Work Context

The position is under the hierarchical responsibility of Dr. Philipp del Hougne (CR CNRS).

The position is part of the research line on Intelligent Wave Systems which is led by Dr. Philipp del Hougne. This research line is part of IETR's eWaves group.

### Additional Information

Consult <https://sites.google.com/view/pdelhougne/home> for details on our recent works related to metamaterials for wireless localization, such as:

- [1] M. del Hougne, S. Gigan, and P. del Hougne, *Deeply Subwavelength Localization with Reverberation-Coded Aperture*, Physical Review Letters **127**, 043903 (2021).  
<https://doi.org/10.1103/PhysRevLett.127.043903>
- [2] C. Saigre-Tardif and P. del Hougne, *Self-Adaptive RISs Beyond Free Space: Convergence of Localization, Sensing and Communication under Rich-Scattering Conditions*, IEEE Wireless Communications, in press, arXiv:2205.11186 (2022).  
<https://arxiv.org/abs/2205.11186>