



## Post-doctoral position : Original applications in vibrating reverberation chambers (VIRC)

### Offer description

<i>Keywords</i>	Reverberation chamber, VIRC, anechoic environment, electromagnetic compatibility, antenna efficiency, radar cross section, over-the-air test, antenna radiation pattern.
<i>Research Laboratory</i>	XLIM Laboratory, UMR CNRS 7252, University of Limoges, Limoges, France.
<i>Duration</i>	24 months (at least)
<i>Application deadline</i>	July 1, 2021
<i>Expected starting date</i>	Last trimester of 2021
<i>Required nationality</i>	European Union and Switzerland
<i>Research project</i>	CHAOTIQ (funded by the ANR ASTRID French Program) coordinated by XLIM. Other partners of the project : CISTEME ( <a href="https://cisteme.net/">https://cisteme.net/</a> ) and Jacques Dubois ( <a href="http://www.jacquesdubois.com/">http://www.jacquesdubois.com/</a> )

### Project description

The project proposes the theoretical and experimental study of chaotic vibrating reverberation chambers (CVRC) made of a metallic tent attached on a light frame. This low-cost test facility (compared to existing faradized enclosures) has the advantage of being quickly removable and mobile, which generates a major change compared to the current situation: the displacement of the test facility towards the system to be tested. It is planned to investigate the feasibility of original applications within a VIRC, as for instance over-the-air tests of wireless devices, characterization of antennas (efficiency, radiation pattern) and radar-cross section measurements. The selected candidate will have to propose (in collaboration with all the project members) the suitable experimental setups as well as the post-processing programs related to each innovative applications proposed.

### Research environment

The candidate will join the electromagnetic compatibility (EMC) team making part of the “RF system” group of the XLIM laboratory (<https://www.xlim.fr/recherche/pole-electronique/systemes-rf>) of the XLIM laboratory, at the University of Limoges (France). The



candidate will work in close collaboration with the colleagues of the “Antennas and Signals” team of the same group.

## Qualifications

Candidates should have a Ph.D. degree in electromagnetics, ideally in the field of reverberation chambers, with important skills in signal processing, instrumentation, antennas and/or EMC. The successful candidate should be able to smoothly integrate into the research group and to interact with French and international partners. He should demonstrate capability for independent research. Good communication skills in English are required.

## Further information

Further information may be obtained from Guillaume Andrieu, Assistant professor (HDR) ([guillaume.andrieu@xlim.fr](mailto:guillaume.andrieu@xlim.fr)).

## Application procedure

Please submit your application before June 1, 2021 by e-mail to [guillaume.andrieu@xlim.fr](mailto:guillaume.andrieu@xlim.fr). Your application should include:

- Motivation letter
- Detailed CV
- Copy of Ph.D. degree
- Reference letters (optional)

## References

- [1] F. Leferink, Patent NL1010745, “Test Chamber”, 1998.
- [2] G. Andrieu *et al*, “Fast and accurate assessment of the well stirred condition of a reverberation chamber from  $S_{11}$  measurements”, IEEE Trans. on EMC, Aug. 2019.
- [3] G. Andrieu *et al*, “Complete Framework for Frequency and Time-Domain Performance Assessment of Vibrating Intrinsic Reverberation Chambers”, IEEE Trans. on EMC, Oct. 2020.
- [4] K. A. Remley *et al*, “Configuring and Verifying Reverberation Chambers for Testing Cellular Wireless Devices”, IEEE Trans. on EMC, June 2016.
- [5] C. L. Holloway *et al*, “Reverberation chamber techniques for determining the radiation and total efficiency of antennas”, IEEE Trans. On AP., April 2012.
- [6] A. Soltane *et al*, “Monostatic radar cross-section estimation of canonical targets in reverberation chamber using time-gating technique”, EMC Europe symposium, Amsterdam, September 2018.