



Post-doc on nanophotonics theory and numerical simulations



ICB, Dijon-France

A postdoctoral fellowship on nanophotonics (theoretical description and numerical simulations) is available in the Photonic Department of the ICB laboratory (Dijon, France). We are seeking a bright, highly motivated candidate with a PhD degree in nanophotonics or closely related discipline. The PostDoc will participate to the project HiLight (HIGH-index dielectric nanostructures for controlled LIGHT emission and propagation) recently funded by the French National Agency.

The post-doctoral fellow will be in charge of optimizing hybrid emitter-nanostructures design for achieving bright optical nanosources presenting high gain and high directivity (numerical simulations and multi-objectives optimization). (S)he will strongly interact with experimentalists to include the nanofabrication constraints into the developed models, but also for full numerical simulations of the experimental measurement with a strong feedback between theory, model and experimental observations. (S)he will also harness the power of a deep learning approach to optimize nanostructures design solely on their measured far-field response.

Strong interaction with our partner CEMES Toulouse (V. Paillard and A. Cuche) are expected with short secondments in their lab.

The candidate should have an excellent knowledge in nanophotonics modelling. Expertise in deep learning will be appreciated.

References

- Barthes *et al*, *Purcell factor for [...] a 2D-plasmonic waveguide* Phys. Rev. B **84**, 073403 (2011)
Derom *et al*, [...] *rare earth doped plasmonic core-shell nanoparticles*, Nanotech. **24**, 495704 (2013)
Weeber *et al*, [...] *Integrated light sources for SPP mediated photonic waveguide excitation*, ACS Phot. **3**, 844 (2016)
Wiecha *et al*, *Evolutionary multi-objective optimization of colour pixels [...]*, Nat. Nanotech. **12**, 163 (2017)
Wiecha *et al*, *Strongly Directional Scattering from Dielectric Nanowires*, ACS Phot. **4**, 2036 (2017)
Wiecha *et al*, *Enhanced electric and magnetic transition of rare-earth doped thin films [...]*, App. Opt. **58**, 1682 (2019)

Supervisor

Prof. Gérard Colas des Francs - gerard.colas-des-francs@u-bourgogne.fr
Laboratoire Interdisciplinaire Carnot de Bourgogne
UMR 6303 CNRS/Université Bourgogne Franche-Comté
Dijon, France

The post-doc is one year, renewable one year

Application	Please send the following documents (all in one PDF file) to gerard.colas-des-francs@u-bourgogne.fr 1) ForEU candidates: Copy of national ID card or passport page where your photo is printed. For non-EU candidates: Copy of passport page where your photo is printed. 2) Curriculum Vitae (may include hyperlinks to your ResearchID, Research Gate Google Scholar accounts). 3) Detailed list of publications (may include hyperlinks to DOI of publications). 4) Letter of motivation relatively to the position (Cover Letter) in which applicants describe themselves and their contributions to previous research projects (maximum 2 pages) 5) Copy of your PhD degree if already available. 6) Coordinates of reference persons (maximum 3, at least your master thesis supervisor): Title, Name, organization, e-mail. If you have questions regarding the application, please contact the supervisor.
--------------------	---