

Aurélien CUCHE –

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Aurélien Cuche (37 years old) is a permanent CRCN researcher at CEMES, CNRS since January 1st, 2013. He obtained his PhD in Physics (2009) from the University Joseph Fourier of Grenoble, where he developed and studied fluorescent active probes based on Nitrogen-Vacancy centers for near-field optics and preliminary quantum plasmonics experiments. Then he moved to ISIS laboratory, University of Strasbourg, as a Postdoc (2010-2012). He worked on two projects focusing on diffractive and opto-mechanical properties of surface plasmons. Since his hiring at CEMES, he developed a project dedicated to the study the coupling of Quantum emitters (electric and magnetic dipolar transitions) to plasmonic and dielectric nanostructures. His scientific background is therefore deeply soaked by the applied and fundamental aspects of optical forces, near-field optics, single photon physics and plasmonics (37 peer-reviewed publications; current h-index of 15 - ISI Web of Science).

List of 5 recent publications

- [1] U. Kumar, **A. Cuche**, J. Sharma, A. Moreau, G. Colas des Francs, C. Girard, E. Dujardin, “Spectral tuning of high order plasmonic resonances in multimodal film-coupled crystalline cavities” *Adv. Optical Mater.*, **7** (11), 1801787 (2019).
- [2] P. R. Wiecha, C. Girard, V. Paillard, A. Arbouet, B. Masenelli, A. Lecestre, G. Larrieu, **A. Cuche**, “Tailored enhancement of electric and magnetic dipole emission on dielectric nanostructures revealed by rare-earth doped films” *App. Optics*, **58** (7), 1682-1690 (2019).
- [3] **A. Cuche**, M. Berthel, U. Kumar, G. Colas des Francs, S. Huant, E. Dujardin, C. Girard, A. Drezet, “Near-field hyperspectral quantum probing of multimodal plasmonic resonators”, *Phys. Rev. B* **95** (12), 121402(R) (2017).
- [4] J.-M. Yi, A. Cuche, F. de Leon-Perez, A. Degiron, E. Laux, E. Devaux, C. Genet, J. Alegret, L. Martin-Moreno and T.W. Ebbesen, “Diffraction Regimes of Single Holes”, *Phys. Rev. Lett.* **109**, 023901 (2012).
- [5] A. Cuche, O. Mollet, A. Drezet and S. Huant, “Deterministic” quantum plasmonics”, *Nano Letters* **10**, 4566-4570 (2010).