

Newsletter, August 2012

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Hungary is joining COST Plasmonics and has signed our Memorandum of Understanding.

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COST Plasmonics activities are currently on-hold, awaiting approval of the budget for the budget year 2012-2013 by the COST office. Most importantly, the Domain Committee of the MPNS domain (to where COST Plasmonics belongs) requested the COST Committee of Senior Officials to take a decision about the continuation of the Action.

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Photonics 21 is formulating its recommendation for Horizon 2020 - the new framework programme of the European Commission. Members of COST Plasmonics are invited to take an active part by joining the working groups of their choice:

- WG1: Information and Communication
- WG2: Industrial Manufacturing and Quality
- WG3: Life Sciences and Health
- WG4: Emerging Lighting, Electronics and Display
- WG5: Security: Metrology and Sensors
- WG6: Optical Components and Systems
- WG7: Research, Education and Training

Detailed information may be found at <http://www.photonics21.org>

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All partners are welcome to submit the entries to Papers, Jobs and Events sections.

#### Papers

Nonlocal effects in the nanofocusing performance of plasmonic tips

A. Wiener, A. I. Fernández-Domínguez, A. P. Horsfield, J. B. Pendry, & S. A. Maier  
Nano Lett. 12, 3308 (2012)

<http://pubs.acs.org/doi/abs/10.1021/nl301478n>

High contrast superlens lithography engineered by loss reduction

H. Liu, B. Wang, L. Ke, J. Deng, C. C. Choy, M. S. Zhang, L. Shen, S. A. Maier, & J. Teng  
Adv. Function. Mater., Early View (2012)

<http://onlinelibrary.wiley.com/doi/10.1002/adfm.201200788/abstract>

Efficient low dispersion compact plasmonic-photonic coupler

T. P. H. Sidiropoulos, S. A. Maier, & R. F. Oulton  
Opt. Express 20, 12359 (2012)

<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-11-12359>

Waveguide artefacts in terahertz near field imaging

M. Misra, S. R. Andrews, & S. A. Maier  
Appl. Phys. Lett. 100, 191109 (2012)

[http://apl.aip.org/resource/1/applab/v100/i19/p191109\\_s1](http://apl.aip.org/resource/1/applab/v100/i19/p191109_s1)

Demonstration of Magnetic Dipole Resonances of Dielectric Nanospheres in the Visible Region

A. B. Evlyukhin, S. M. Novikov, U. Zywietz, R. L. Eriksen, C. Reinhardt, S. I. Bozhevolnyi, and B. N. Chichkov

Nano Lett. 12, 3749 (2012)

<http://pubs.acs.org/doi/abs/10.1021/nl301594s>

Quantitative Modeling of the Third Harmonic Emission Spectrum of Plasmonic Nanoantennas

M. Hentschel, T. Utikal, H. Giessen, and M. Lippitz  
Nano Lett. 12, 3778 (2012)  
<http://pubs.acs.org/doi/abs/10.1021/nl301686x>

Accelerated single photon emission from dye molecule-driven nanoantennas assembled on DNA  
M. P. Busson, B. Rolly, B. Stout, N. Bonod and S. Bidault  
Nat Commun 3:962 doi:10.1038/ncomms1964 (2012)  
[http://www.nature.com/ncomms/journal/v3/n7/abs/ncomms1964.html?WT.ec\\_id=NCOMMS-20120717](http://www.nature.com/ncomms/journal/v3/n7/abs/ncomms1964.html?WT.ec_id=NCOMMS-20120717)

Efficient thermo-optically controlled Mach Zehnder interferometers using dielectric-loaded plasmonic waveguides  
J. Gosciniaik, L. Markey, A. Dereux, and S. I. Bozhevolnyi  
Opt. Express 20, 16300 (2012)  
<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-15-16300>

Ultrasmall metal-insulator-metal nanoresonators: impact of slow-wave effects on the quality factor  
J. Yang, C. Sauvan, A. Jouanin, S. Collin, J.-L. Pelouard, and P. Lalanne  
Opt. Express 20, 16880 (2012)  
<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-15-16880>

Wedge nanostructures for plasmonic nanofocusing  
D. Garoli, P. Zilio, M. Natali, M. Carli, F. Enrichi, and F. Romanato  
Opt. Express 20, 16224 (2012)  
<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-15-16224>

Local excitation of surface plasmon polaritons by second-harmonic generation in crystalline organic nanofibers  
E. Skovsen, T. Søndergaard, J. Fiutowski, P. Simesen, A. Osadnik, A. Lützen, H.-G. Rubahn, S. I. Bozhevolnyi, and K. Pedersen  
Opt. Express 20, 16715 (2012)  
<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-15-16715>

Chemical deposition and stabilization of plasmonic copper nanoparticle films on transparent substrates  
M. D. Susman, Y. Feldman, A. Vaskevich & I. Rubinstein  
Chem. Mater. 24, 2501 (2012)  
<http://pubs.acs.org/doi/pdf/10.1021/cm300699f>

Light Scattering under Nanofocusing: Towards Coherent Nanoscopies  
A. Mohammadi and M. Agio  
Opt. Commun. 285, 3383 (2012)  
<http://dx.doi.org/10.1016/j.optcom.2011.12.074>  
Special Issue: Subwavelength Light Localization and Focusing

Optical Antennas (Cambridge University Press, 2012)  
M. Agio and A. Alù (editors)  
<http://www.cambridge.org/knowledge/isbn/item6925780>

Controlling light-with-light without nonlinearity  
J. Zhang, K. F. MacDonald and N. I. Zheludev  
Light Sci Appl 2012 1: e18; 10.1038/lssa.2012.18  
[http://www.nature.com/lssa/journal/v1/n7/abs/lssa201218a.html?WT.ec\\_id=LSA-201207](http://www.nature.com/lssa/journal/v1/n7/abs/lssa201218a.html?WT.ec_id=LSA-201207)

Quantifying the magnetic nature of light emission  
T. H. Taminiou, S. Karaveli, N. F. van Hulst & R. Zia

Nat. Commun. 3:979 doi:10.1038/ncomms1984  
[http://www.nature.com/ncomms/journal/v3/n7/pdf/ncomms1984.pdf?WT.ec\\_id=NCOMMS-20120731](http://www.nature.com/ncomms/journal/v3/n7/pdf/ncomms1984.pdf?WT.ec_id=NCOMMS-20120731)

Enhanced second-harmonic generation from double resonant plasmonic antennae

K. Thyagarajan, S. Rivier, A. Lovera, and O.J.F. Martin

Opt. Express 20, 12860 (2012)

<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-12-12860>

Plasmonic black gold by adiabatic nanofocusing and absorption of light in ultra-sharp convex grooves

T. Søndergaard, S. M. Novikov, T. Holmgaard, R. L. Eriksen, J. Beermann, Z. Han, K. Pedersen and S. I. Bozhevolnyi

Nat. Commun. 3:969 doi:10.1038/ncomms1976 (2012)

[http://www.nature.com/ncomms/journal/v3/n7/abs/ncomms1976.html?WT.ec\\_id=NCOMMS-20120724](http://www.nature.com/ncomms/journal/v3/n7/abs/ncomms1976.html?WT.ec_id=NCOMMS-20120724)

Interference, Coupling, and Nonlinear Control of High-Order Modes in Single Asymmetric Nanoantennas

M. Abb, Y. Wang, P. Albella, C. H. de Groot, J. Aizpurua, and O. L. Muskens

ACS Nano 6, 6462 (2012)

<http://pubs.acs.org/doi/abs/10.1021/nn3021579>

Multi-wavelength superlensing with layered phonon-resonant dielectrics

P. Li and T. Taubner

Opt. Express 20, 11787 (2012)

<http://www.opticsinfobase.org/oe/abstract.cfm?uri=oe-20-11-11787>

Quasi-analytical model for scattering infrared near-field microscopy on layered systems

B. Hauer, A.P. Engelhardt and T. Taubner

Opt. Express 20, 13173 (2012)

<http://www.opticsinfobase.org/oe/abstract.cfm?URI=oe-20-12-13173>

## Jobs

Master, PhDs and Postdoc positions at LENS (<http://www.lens.unifi.it>), Florence, Italy on light-matter interaction at the nanoscale: spectroscopy, sensing and signal processing - theory and experiments.

Contact: Mario Agio ([agio@lens.unifi.it](mailto:agio@lens.unifi.it))

Postdoc position at LBB (<http://www.lbb.ethz.ch>), ETH Zurich, Switzerland on FluidFM and nanoplasmonics for biomolecular sensing (In the framework of an interdisciplinary project supported by the Swiss Innovation Agency KTI-CTI). The main objective of the experimental work will be to combine the FluidFM technology and plasmonic metal nanoparticles for optical biosensing via molecular recognition on abiotic surfaces and cell membranes in liquid environment.

Duration: 2 years, starting Oct. 1 2012

Contact: Tomaso Zambelli ([ztomaso@ethz.ch](mailto:ztomaso@ethz.ch)).

PhD position at AIT Austrian Institute of Technology, Vienna, Austria on Active Plasmonics with Responsive Hydrogels. The project focuses on new biosensor schemes that take advantage of actuating of surface plasmons and active hydrogel-based binding matrices. The project embraces the development of new hybrid metal-polymer responsive nanostructures with specific optical properties and their implementation to novel biosensors exploiting (localized) surface plasmon resonance and surface plasmon-enhanced fluorescence spectroscopy.

Contact: Jakub Dostalek, [jakub.dostalek@ait.ac.at](mailto:jakub.dostalek@ait.ac.at) or Maria Mauer, [maria.maurer@ait.ac.at](mailto:maria.maurer@ait.ac.at).

Postdoc position in ultrafast optics and magneto(spin)plasmonics (plasmonics + magnetism) at Chalmers, Göteborg, Sweden

Requirements: Previous experience with ultrafast optical studies is a prerequisite. Strong interest / previous experience in nanooptics / nanoplasmonics as well as in time-resolved MOKE is a merit.

Position starts ASAP

(<http://web1.reachmee.com/i003/chalmers/eng/vacdetail.aspx?commadsegno=560&postback%20=%20vacancies.aspx>)

Contact: Alexandre 'Sascha' Dmitriev, [alexnd@chalmers.se](mailto:alexnd@chalmers.se)

<http://www.chalmers.se/ap/EN/research/bionanophotonics/research/functional>

Postdoc positions at the University of Eastern Finland, Joensuu, Finland

Contact: Pasi Vahimaa, [Pasi.Vahimaa@joensuu.fi](mailto:Pasi.Vahimaa@joensuu.fi)

<http://www.uef.fi/fysmat>.

Postdoc position at NAM ([www.nanophotonics.ch](http://www.nanophotonics.ch)), EPFL, Lausanne, Switzerland on molecular lifetime engineering. The objective of this project is to use advanced plasmonic nanostructures to engineer radiative and non-radiative decay rates in molecular systems. The project will include setting up a lifetime measurement setup based on a PicoQuant system, nanofabrication of plasmonic nanostructures and the corresponding modelling.

Duration: up to 4 years

Requirements: Strong expertise in nanofabrication and modelling already exist in the NAM and we are looking for a collaborator with skills in lifetime measurements and/or microscopy and optical measurements. The candidate should ideally have expertise in lifetime measurements or a very strong background in optical microscopy, a proven track record in scientific publications and a strong interest for molecular interactions with plasmonic systems.

Further info: [www.nanophotonics.ch](http://www.nanophotonics.ch)

PhD position at RWTH Aachen University and the Fraunhofer Institute of Laser Technology (ILT) within the DFG programme 1327/2 „Nanostructures tailored with Laser light“ . The project focuses on the use of plasmonics structures for laser beam shaping, with special emphasis of new materials and fabrication techniques. We offer an all-new optical lab and nanofabrication facilities as well as simulation tools. Candidates truly passionate about experimental research and with knowledge of lasers and nanophotonics are invited to send in their application until 30.8.2012

Contact: Prof. Dr. Thomas Taubner, [taubner@physik.rwth-aachen.de](mailto:taubner@physik.rwth-aachen.de)

## Events

Quantum Nano-Optics Workshop (satellite of NFO conference) at ICFO, Barcelona, Spain  
September 10-11, 2012

<http://quantumnano-optics.icfo.eu/>

33rd Progress in Electromagnetics Research Symposium (PIERS) in Taipei, Taiwan  
March 25-28, 2013

<http://piers.org/piers/submit/survey.php>

Optics Within Life Sciences (OWLS), Genoa, Italy  
July 4-6, 2012

<http://www.owls2012.org/>

[Partner network event, COST Action Nano-IBCT]

Symposium on atomic cluster collisions

July 18-23, 2013, Wuhan-Chongqing, China

<http://fias.uni-frankfurt.de/isacc/>

Previous meeting of the series: <http://fias.uni-frankfurt.de/isacc2011/index.php/>

