Report EFS workshop “NanoLight 2014”

Website: **http://benasque.org/2014nanolight/**

Introduction

The ESF-supported workshop ***“NanoLight 2014”***, during 2-8 of March 2013 gathered 124 researchers to discuss and explore the frontiers in the field of sub-wavelength optics, currently referred to as Nanophotonics. The meeting will took place in Benasque (Spain), which is a small but beautiful village, located in the heart of the Pyrenees, close to the Spanish border with France; at the Centre for Science, excellently equipped for scientific workshops and discussion sessions (see http://benasque.org/ for information about the centre facilities). The crucial sponsorship of ESF was prominently mentioned and visibly displayed throughout the meeting.

The particular objective of this conference has been to facilitate interaction between worldwide researchers working in the field, with a special emphasis on interaction between young and more experienced researchers. To this end, both oral presentations by key-speakers and selected contributors, and discussion sessions have been planned.

The Science Centre “Pedro Pascual” in Benasque is particularly designed with an environment and facilities to stimulate for scientific discussion without threshold, truly ideal for maturation of emerging science topics. The centre provides lecture rooms, discussion rooms and working rooms all with modern computer and internet facilities. The Benasque centre staff is very experienced in conference organisation, setting up the meeting program, professional communication with invited speakers, participants, etc., etc…, allowing the scientific organisers to focus on the science side of the workshop.

The workshop covered a variety of topics, all connected to nanoscale control of light and largely to connected to theme of ESF program PlasmoBioNanoSense. As such several applications in biology were put forward, such as tip-enhanced micro-spectroscopy, nanoscale thermal control and the use of nanoplasmonic forces to trapping single nanoparticles. But the workshop went further than that, with the use of nanoantennas for bright and directional photon sources and LED devices, while acting as enhanced receivers for applications in photovoltaics. Connected to this was the new topic of optical metasurfaces for beam steering and spatial phase control. An important development and highlight at the workshop was the use of nanophotonic structures to obtain strong coupling conditions and the related topic of quantum plasmonics, both aimed at observing and controlling quantum optical phenemona on the nanoscale. Obviously the plasmonic properties of graphene were highlighted as it allows for extreme light confinement and control particularly at near-infrared and mid-infrared frequencies, and electronic control by doping of the graphene. At the same time electrons keep on being an important tool to characterize plasmonic modes and e-beam probing of plasmon modes was a topic at the workshop. Finally more

specialized topics on ultrafast nanophotonics, magneto-optics and the use of multipolar interactions formed part of the program.

The workshop was a great success and drew the largest audience ever for a Benasque workshop. The meeting was very vibrant, with a large number of questions after each talk, with permanent scientific discussions, many contacts and collaboration. Also at coffee breaks and poster sessions discussions continued; a truly buzzing scientific atmosphere permeating the centre during that week.

It should be noted that ***IOP-Science***, with ***Journal of Optics***, was present at the workshop, with a stand in the poster sessions area.

Scientific Content

Here an overview of the more relevant topics and contributions presented in the workshop.

Strong coupling using nanophotonic structures: Strong coupling emerged as a prominent and strongly developing topic at the worshop. Both invited and contributed speakers highlighted ultrafast coherent energy transfer on the nanoscale, the strong coupling of organic molecules over larger macrocscopic distnces and the role vacuum field effects.

Quantum plasmonics: quantum effects in plasmonics is a topic in development with a rather borad range of approaches, both in theory and experiment. Subnanometric plasmonic nanogaps were addressed to understand their optoelectronic properties. Similarly the coupling of few photon emitters over macroscopic distances through various waveguiding approaches.

Bright directional emitters: Nanoantennas do enhance the local excitation rate and (non)radiative decay rate. As a result dyes, fluorescent proteins, quantum dots and diamond NV centers can all be made brighter, moreover with controlled emission direction. Applications in efficient and directional LED devices were presented.

Plasmonic enhanced photovoltaics: Reciprocal to the decay rate enhancement, plasmonics also enhances the efficiency of light capture. Applications were presented to enhance photocurrent in layers of PbS quantum dots and photo-generated resonant structures in flat semiconductor layers

Graphene plasmonics: Graphene is an important and timely platform for plasmonic and magnetoplasmonic. Localized plasmons in grapheme sheets were presented and the mediation by graphene of electrically controlled light-matter interactions for near-infrared and mid-infrared frequencies

Nanophotonics for biological applications: Various applications were put forward at the workshop: the use of photonic antennas for sub-nm resolution fluorescence imaging on cell membranes; tip-

enhanced infrared spectroscopy to image and identify locally bacteria and proteins; plasmonic enhanced fluorescence energy transfer

Nanoscale thermal control: the nanoscale control of heat inside cells and tissue, a field coined as thermoplasmonics:

Ultrafast nanophotonics: fs-plasmonics is still a field in its infancy, yet steady progress is made. Presented were the carrier-envelope phase effects on strong-field photoemission of electrons from sharp metallic tips; and the phase control of femtosecond pulses on the nanoscale for precise measurement of the resonance response in single plasmonic nano-antennas

Optical forces: plasmonic fields do exert forces on the nanoscale, allowing trapping of single nanoparticles. At the meeting works were presented on the optical forces and chirality of plasmonic fields; on stochastic near field 3D microscopy using Brownian metallic nanoparticles; and on the cooling and amplification of a vacuum-trapped nanoparticle

Magneto-optics and multipolar interactions: on the nanoscale field gradients are relatively strong. As a result the non-dipolar components can play an important role. Both magnetic and non-dipolar electric optical resonances of spherical semiconductor/dielectric nanoparticles are attracting interest. At the workshop was addressed the “magnetic” light in all-dielectric nanophotonics structures. Also multipoles and coupled multipolar oscillators were treated in detail.

Flat-nano-optics: Planar surface nanostructures, so-called metasurfaces, have been shown to allow beam steering. At the workshop optical metasurfaces were presented for multifunctional beam shaping and chromatic aberration correction; also a phase-modulated and amplitude-modulated metalens for super-focussing , ultra-thin layers for colour coatings, tunable absorbers, and anomalous thermal emitters; finally shaping reflected light with gap plasmon based metasurfaces

Plasmonics using electrons: Electron beams keep on being a universal tool to characterize nanoplasmonic structures. Especially electron energy loss spectroscopy provides direct spatial frequency maps of plasmonic modes. Elementary plasmon modes with electron probes were revisited.

Website front-page - ESF *Benasque NanoLight 2014*

Nanolight

2014, Mar 02 -- Mar 08

Organizers:
L. Martín Moreno (ICMA, CSIC - U. Zaragoza)
N. Van Hulst (ICFO, Barcelona)

Scope of the conference

Nanolight2014 aims at the exploration of the frontiers in the field of subwavelength optics.

The meeting will take place in Benasque, which is a beautiful village with a famous ski resort, located in the heart of the Pyrenees, close to the Spanish border with France.

The objective of this conference is to facilitate interaction between worldwide researchers working in the field, with a special emphasis on interaction between young and more experienced researchers. To this end, presentations will be given in the afternoons. Mornings will be left free, so participants may enjoy the mountains and/or the excellent working environment provided by the Centro de Ciencias in Benasque (see http://benasque.org/ for information about the centre facilities).

Invited speakers

J. Aizpurua	S. Bozhevolnyi
F. Capasso	T. Ebbesen
S. Fan	F. J. Garcia Abajo
F. J. Garcia-Vidal	J. Gomez-Rivas
R. Hillenbrand	Y. Kivshar
F. Koenderink	F. Koppens
J. Krenn	C. Lienau
S. Maier	L. Novotny
R. Quidant	X. Zhang

Call for participations

Abstract submission closed.

The **deadline** for abstract submission was**November, 29 (2013)**. Abstracts acceptance were notified on **December 20 (2013)**.

Contact information
info@benasque.org

Sponsors

EUROPEAN SCIENCE FOUNDATION

Program - ESF *Benasque NanoLight 2014*

Monday, March 03

14:45:15:00h **Welcome**

15:00:15:35h **Properties of materials modified by the Vacuum Field**

T. Ebbesen

15:35:16:10h **Ultrafast coherent charge and energy transfer in plasmonic and light harvesting systems: Taking movies of electronic motion in nanosystems**

R. Vogelgesang

16:10:16:45h **Strong coupling of organic molecules with plasmons**

F. J. Garcia-Vidal

16:45:17:20h **Strong coupling studies with surface lattice resonances**

P. Torma

17:40:18:15h **Hybrid nanoantennas for nonlinear nanophotonics, and direct probing of the bosonic nature of surface plasmon polaritons**

S. Maier

18:15:18:50h **Enhanced photocurrent in layers of PbS quantum dots within plasmonic bull's eye structures**

S. Diedenhofen

18:50:19:25h **Hybrid metal/semiconductor lasers based on confined Tamm plasmons**

G. Lheureux

19:25h **Plasmonics for efficient and directional LED devices**

G. Lozano

19:45:20:05h **Plasmonic and magnetoplasmonic effects in graphene**

A. Nikitin

20:05:20:25h **Photonic Antennas For Biology**

M. Mivelle

Tuesday, March 04

15:00:15:35h **Thermoplasmonics: Nanoscale control of heat and its applications**

R. Quidant

15:35:16:10h **Shaping reflected light with gap plasmon based metasurfaces**

S. Bozhevolnyi

16:10:16:45h **Thin film interference in ultra-thin layers: color coatings, tunable absorbers, and anomalous thermal emitters**

M. Kats

16:45:17:20h **Photo-generated resonant structures in flat semiconductor layers**

J. Gomez-Rivas

17:40:18:15h **Unraveling the optoelectronics of subnanometric plasmonic nanogaps**

J. Aizpurua

18:15:18:35h **Carrier-envelope phase effects on the strong-field photoemission of electrons from sharp metallic tips**

P. Gross

18:35:18:55h **Optical forces and chirality of plasmonic fields**

A. Canaguier-Durand

18:55:19:30h **Plasmons in low-dimensional structures**

F. J. Garcia de Abajo

19:30:20:05h **Fluidic and acoustic nearfield mapping around a micro-oscillator in water**

S. Carretero-Palacios

Wednesday, March 05

09:00:09:35h **All-dielectric nanophotonics: from magnetic light to metasurfaces**

Y. Kivshar

09:35:10:10h **Magnetic and electric optical resonances of Si nanoparticles**

A.Evlyukhin

10:10:10:45h **Optical Metasurfaces for Multifunctional Beam Shaping and Chromatic Aberration Correction**

T. Ellenbogen

11:05:11:40h **Electrically controlled light-matter interactions mediated by graphene for near-infrared and mid-infrared frequencies**

F. Koppens

11:40:12:15h **Single molecule controlled emission in planar plasmonic cavity**

G. Colas de Francs

12:15:12:50h **Plasmonic enhanced fluorescence energy transfer**

P. Ghenuche

15:00:15:35h **Phase control of femtosecond pulses on the nanoscale for precise measurement of the resonance response in single plasmonic nano-antennas**

N. Accanto

15:35:16:10h **Nanoantennas for ultra-bright single photon sources**

R. Filter

16:10:16:45h **Plasmon Switching and Beam Steering with a Sub-wavelength Aperture**

T. Visser

17:30h **Poster Session**

Download full version of the posters

Thursday, March 06

15:00:15:35h **Photon-photon interaction in nanophotonic structures viewed from cluster-decomposition principle.**

Shanhui Fan

15:35:16:10h **Few-photon photonics in waveguides**

D. Zueco

16:10:16:45h **Cooling and amplification of a Vaccuum-Trapped Nanoparticle**

L. Novotny

16:45:17:20h **Stochastic near field 3D microscopy using Brownian metallic nanoparticles**

A. Martinez-Marrades

17:40:18:15h **Revisiting elementary plasmon modes with electron probes**

J. Krenn

18:15h **Plasmonic Surface Lattice Resonances for different lattice symmetries**

A. Humphrey

18:50:19:25h **Tip-enhanced infrared spectroscopy - From plasmons to proteins**

R. Hillenbrand

19:25:19:45h **Super-focusing by phase-modulated and amplitude-modulated metalens**

Chen-Wei Qiu

19:45:20:20h **Sculpting threads between gold nanoparticles with light**

L. Herrmann

Friday, March 07

08:45:09:20h **Multipoles and coupled oscillators in nano-optics: The need to quantify intuition**

F. Koenderink

09:20:09:55h **Screening effect on the optical absorption in graphene and metallic monolayers**

M. Jablan

09:55:10:15h **Exotic optical properties of metal-semiconductor nanostructures: Negative- and zero-index metamaterials and transparent nanocontacts**

J. A. Sanchez-Gil

10:35:11:10h **New optical properties of nanoapertures and their applications**

V. V. Klimov

11:10:11:30h **Absorptance and polarization-contrast improvement via plasmonic structure integrated infrared single-photon detector configurations**

M. Csete

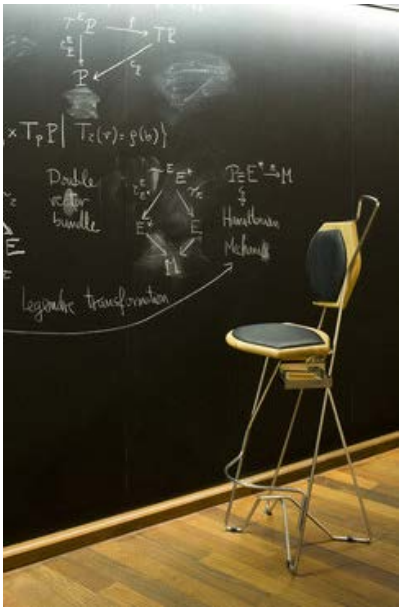
11:30:12:05h **A Plasmon Autocorrelator**

C. Lemke

12:05:12:40h **Coherent Fourier Scatterometry for detection of nanometer-sized particles on a planar substrate surface**

S. Roy

Participants - ESF *Benasque NanoLight2014* *March 2014*



List of Participants - ESF *Benasque NanoLight2014*

Nanolight – Table ESF information participants

Title	Family name	First name	Nationality	Sex	Name of Institution	Postal Address	Town	Post Code	Country	E-mail
Mr	ACCANTO	Nicolò	Italian	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	nicolo.accanto@icfo.es
Mr	AGUIRREGABIRIA ACHUTEGUI	Garikoitz	Spanish	M	Material Physics Center CSIC-UPV/EHU and Donostia International Physics Center	Tolosa Hiribidea 76	Donostia	20018	Spain	garikoitz_aguirregabiria001@ehu.es
Dr	AIZPURUA	Javier	Spanish	M	CSIC-UPV/EHU and DIPC	Paseo de Manuel Lardizabal, 5,	San Sebastián	20018	Spain	aizpurua@ehu.es
Dr	ALONSO GONZÁLEZ	Pablo	Spanish	M	CIC nanoGUNE	Tolosa Hiribidea 76	Donostia	20018	Spain	palonso@nanogune.eu
Dr	AUÑÓN GARCÍA	Juan Miguel	Spanish	M	Instituto de Ciencia de Materiales de Madrid (CSIC)	C/ Sor Juana Ines de La Cruz 3	Madrid	28049	Spain	jmaunon@icmm.csic.es
Dr	BALDASSARRE	Leonetta	Italian	F	Instituto Italiano di Tecnologia	Viale R. Elena 291	Rome	185	Italy	leonetta.baldassarre@iit.it
Prof	BARNES	William	British	M	University of Exeter	Stocker Road, Physics and Astronomy	Exeter	EX44QL	UK	w.l.barnes@exeter.ac.uk
Dr	BECK	Fiona	British	F	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	fiona.beck@icfo.es
Dr	BEZARES	Francisco	American	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	francisco.bezares@icfo.es
Dr	BORTCHAGOVSKY	Eugene	Ukranian	M	Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine	Plaza. Nanki 41	Kiev	30208	Ukraine	bortch@yahoo.com
Prof	BOZHEVOLNYI	Sergey	Danish	M	Department of Technology and Innovation, University of Southern Denmark	Odense M, Campusvej 55	Odense	DK 5230	Denmark	seib@iti.sdu.dk
Dr	CALBRIS	Gaëtan	French	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	gaetan.calbris@icfo.es
Mr	CANAGUIER-DURAND	Antoine	French	M	ISIS, Université de Strasbourg	Rue Monge	Strasbourg	67000	France	antoine.canaguier@gmail.com
Dr	CARRETERO PALACI	Sol	Spanish	F	Ludwig-Maximilians-Universität München	Geschwister-Scholl-Platz 1	Munich	80539	Germany	carretero.palacios@lmu.de
Dr	CATTONI	Andrea	Italian	M	Laboratoire de Photonique et de Nanostructures (LPN) - CNRS	Route de Nozay	Marcoussis	91460	France	andrea.cattoni@lpn.cnrs.fr
Prof Dr	CHICHKOV	Boris	Russian	M	Laser zentrum Hannover e.V	Hollerithallee 8	Hannover	30419	Germany	b.chichkov@lzh.de
Dr	COELLO	Victor	Mes	M	CICESE	Carretera Ensenada-Tijuana No. 3918	Ensenada	22860	Mexico	vcoello@cicese.mx
Prof	COLAS DES FRANCS	Gérard	French	M	ICB	9 av. Savary	Dijon	21078	France	gerard.colas-des-francs@u-bourgogne.fr
Dr	CORTÉS	Rodolfo	Mexican	M	Centro de Investigación Cientifica y de Educación Superior de Ensenada	Cordillera De los Andes 431	San Nicolas de los Garza	66460	Mexico	rcortes@cicese.mx
Mr	COSTANTINI	Daniele	French	M	Institut d'optique (IOGS)	Avenue Augustin Fresnel	Palaiseau	91127	France	daniele.costantini@u-psud.fr
Dr	COX	Joel	American	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	Joel.Cox@icfo.es
Dr	CSETE	Maria	Hungarian	F	University of Szeged	6720 Szfged, Dom Teag	Szeged	6720	Hungary	mcsete@physx.u-szeged.hu
Mr	CUERDA RODRÍGUEZ	Javier	Spanish	M	Universidad Autónoma de Madrid / IFIMAC	Ciudad Universitaria de Cantoblanco	Madrid	28049	Spain	javier.cuerda@uam.es
Mr	DE TORRES GARCÍA	Juan	Spanish	M	Fresnel Institute	Av. Escadrile Normandie Niemen, Campus	Marseille	13397	France	juan.detorres@fresnel.fr
Dr	DEL PINO	Javier	Spanish	M	Universidad Autónoma de Madrid	Ciudad Universitaria de Cantoblanco	Madrid	28049	Spain	francisco.delpino@uam.es
Dr	DIEDENHOFEN	Silke	German	F	ICFO	Av. Carl Friedrch Gauss 3	Barcelona	8860	Spain	silke.diedenhofen@icfo.es
Prof	EBBESEN	Thomas	Norwegian	M	USIAS et Institut Universitaire de France	5, allée du Général Rouvillois	Strasbourg	67083	France	ebbesen@unistra.fr
Dr	ELLENBOGEN	Tal	Israli	M	Tel Aviv University	Tel Aviv	Tel Aviv	6997801	Israel	tellenbogen@tauex.tau.ac.il
Dr	EVLYUKHIN	Andrey			Laser Zentrum Hannover	Hollerithallee 8	Hannover	30419	Germany	a.b.evlyukhin@mail.ru
Prof	FAN	Shanhui	American	M	Stanford University	Spilker 314, Ginzton Lab	Stanford	CA 94305	USA	shanhui@stanford.edu
Dr	FEIST	Johannes	Austrian	M	Universidad Autónoma de Madrid	Ciudad Universitaria de Cantoblanco	Madrid	28049	Spain	johannes.feist@gmail.com
Dr	FILTER	Robert	German	M	Abbe Center of Photonics	Max-Wiem Plaz 1	Jena	7743	Germany	robert.filter@uni-jena.de
Dr	FLEURY-FRENETTE	Karl	Belgium	M	Centre Spatial de Liège/Université de Liège	Centre Spatial de Liège	Liège	4031	Belgium	kfleury@ulg.ac.be
Prof	GARCIA DE ABAJO	Javier	Spanish	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	javier.garciadeabajo@icfo.es
Dr	GARCIA-ORTIZ	Cesar E	Spanish	M	University of Southern Denmark	Campusvej 55	Odense M	5230	Denmark	goce@iti.sdu.dk
Prof	GARCIA-VIDAL	Francisco Jose	Spanish	M	Univerisdad Autonoma de Madrid	Carretera de Colmenar Km 17	Madrid	28049	Spain	fj.garcia@uam.es
Miss	GASPARIC	Marija	Croatian	F	Karl-Franzens University Graz	Unicerstatsplatz 3	Graz	8010	Austria	marija.gasparic@uni-graz.at
Miss	GELLINGS	Esther	German	F	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	e.gellings@gmail.com
Dr	GHENUCHE	Petru	Romanian	M	Institut Fresnel	Avenue Escadrille Normandie-Niemen 133	Marseille	13013	Germany	petru.ghenuche@fresnel.fr
Dr	GOMEZ RIVAS	Jaime	Spanish	M	FOM Institute AMOLF	Science Park 104	Amsterdam	1098 XG	The Netherlands	penning@amolf.nl
Dr	GONCALVES	Manuel	Portugese	M	Ulm University	Albert-Einstein Allee 11	Ulm	89069	Germany	manuel.goncalves@uni-ulm.de
Mr	GONZALEZ BALLESTE	Carlos	Spanish	M	Universidad Autónoma de Madrid	Av. Francisco Tomás y Valiente 7	Madrid	28049	Spain	carlos.ballestero@uam.es
Dr	GOVYADINOV	Alexander	American	M	CIC nanoGUNE	Tolosa Hiribidea 76	Donostia	20018	Spain	agovyadinov@nanogune.eu
Dr	GROSS	Petra	German	F	Carl von Ossietzky University Oldenburg	Carl-von-Ossiekhy-St, 9	Oldenburg	26129	Germany	petra.gross@uni-oldenburg.de
Dr	GUO	Ke	Korean	F	FOM Institute AMOLF	Science Park 104	Amsterdam	1098 XG	The Netherlands	guo@amolf.nl
Dr	GUTIÉRREZ-RODRIG	Sergio	Spanish	M	Centro Universitario de la Defensa	Carretera de Huesca	Zaragoza	50090	Spain	sergut@unizar.es
Dr	HAKALA	Tommi	Finnish	M	Aalto University	Puumichentie 1, Nanotalo	Otaniem	2150	Finland	tommi.hakala@gmail.com
Mr	HANCU	Ion	Romanian	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	ion.hancu@icfo.es
Mr	HERRMANN	Lars	Swiss	M	University of Cambridge	JJ Thomson Av	Cambridge	CB30HE	UK	loh20@cam.ac.uk
Dr	HILLENBRAND	Rainer	German	M	CIC nanoGUNE	Tolosa Hiribidea 76	Donostia	20018	Spain	r.hillenbrand@nanogune.eu
Mr	HUANG	Kun	Singaporean	M	National U. of Singapore	21 Lower Kent Ridge Rd	Singapore	119077	Singapore	elehk@nus.edu.sg
Dr	HUGALL	James	British	M	ICFO	Av. Carl Friedrch Gauss 3	Barcelona	8860	Spain	james.hugall@icfo.es
Mr	HUMPHREY	Alastair	British	M	University of Exeter	Physics building, Stocker Road	Exeter	EX44QL	UK	A.D.Humphrey@exeter.ac.uk
Miss	INKPEN	Felicity	British	F	IOP Publishing	Temple Circus, Temple Way	Bristol	BS1 6BE	UK	Felicity.Inkpen@iop.org
Dr	JABLAN	Marinko	Croatian	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	Marinko.Jablan@icfo.es
Mr	JI	Jiaxin	Chinese	F	Tsinghua University	Tsinghua University	Beijing	100084	China	jijiaxin0226@163.com

KANG	Eun Kyu	Korean	M	Gwangju Institute of Science and Technology	261 Cheomdan-gwagiro(Oryong-dong), Bu	Gwangju	500-712	Republic of Kore	ekkang@gist.ac.kr
KANOUFI	Frederic	French	M	ITODYS CNRS	15 rue Jean de Baif	Paris	75013	France	frederic.kanoufi@espci.fr
KARANIKOLAS	Vasilia	Greek	M	TRINITY COLLEGE DUBLIN	Dublin 2, College Green, S Niam	Dublin	DUBL1No2	Ireland	karanikv@tcd.ie
KÄSTNER	Bernd	German	M	Physikalisch-Technische Bundesanstalt	Abbestr. Z	Berlin	10117	Germany	bernd.kaestner@ptb.de
KATS	Mikhail	American	M	Harvard U	18 Forest Street 33	Cambridge	2140	USA	mikhail@seas.harvard.edu
KIVSHAR	Yuri	Australian	M	Australian National University	NLPC, RSPE, ANV	Canberra	200	Australia	ysk@internode.on.net
KLIMOV	Vasily	Russian	M	Lebedev Physical Institute	Rimskogo-Korshkova	Moscow	10 256	Russia	klimov256@gmail.com
KOENDERINK	Femius	Dutch	M	FOM Institute AMOLF	Science Park 102	Amsterdam	1098XG	The Netherlands	f.koenderink@amolf.nl
KOPPENS	Frank	Dutch	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	frank.koppens@icfo.es
KRENN	Joachim	Austrian	M	University of Graz	Universitatsplatz 5	Graz	8010	Austria	joachim.krenn@uni-graz.at
LANE	Richard	British	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	richard.lane@icfo.es
LEMKE	Christoph	German	M	University of Kiel, IEAP	Gerhardstre 95	Kiel	D-24105	Germany	lemke@physik.uni-kiel.de
LHEUREUX	Guillaume	French	M	Université Claude Bernard	24 rue D'Alsace	Nicceurbann e	G9100	France	gui.lheureux@gmail.com
LOZANO	Gabriel	Spanish	M	FOM Institute AMOLF	Science Park 104	Amsterdam	1098 XG	The Netherlands	lozano@amolf.nl
MAIER	Stefan	German	M	Imperial College London	Imperial College London	London	SW7 2AZ	UK	S.Maier@imperial.ac.uk
MANZONI	Marco	Italian	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	marco.manzoni@icfo.es
MARTIN MORENO	Luis	Spanish	M	ICMA, CSIC - U. Zaragoza	C/Pedro Cerbuna 12	Zaragoza	50009	Spain	lmm@unizar.es
MARTÍNEZ SAAVEDRA	José Ramón	Spanish	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	jose.martinez@icfo.es
MARTINEZ-MARRADES	Ariadna	Spanish	F	Institut Langevin, ESPCI ParisTech	16 B, Rue Bardinet	Paris	75014	France	ariadna.martinez-marrades@espci.fr
MAZZAMUTO	Giacomo	Italian	M	European Laboratory for Non-Linear Spectroscopy (LENS)	via N Carrara 1	Sesto Fiorentino	50019	Italy	mazzamuto@lens.unifi.it
MEL	Shengtao	Singaporean	M	National University of Singapore	21 Lower Kent Ridge Rd	Singapore	119077	Singapore	a0113458@nus.edu.sg
MENDEZ	Eugenio	Mexican	M	CICESE	Carretera ensenada, T.Juaner 3918	Mexico	22860	Mexico	emendez@cicese.mx
MENNEMANTEUIL	Marie-Maxime	French	F	Laboratoire interdisciplinaire carnot de Bourgogne	9 Avenue Alain Savary 21	Dijon	21078	France	marie-maxime.mennemanteuil@u-bourgo
MIVELLE	Mathieu	French	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	mathieu.mivelle@icfo.es
NIELSEN	Michael	Canadian	M	Imperial College London	D006 Wood Lane Studios, 80 Wood lane	London	W12 OBZ	UK	m.nielsen13@imperial.ac.uk
NIKITIN	Alexey	Ukranian	M	CIC Nanogune	Av.Tolosa Hiribidea 76	Donostia	20012	Spain	alexeynik@rambler.ru
NOVOTNY	Lukas	Swiss	M	ETH Zürich	Rämistrasse 101	Zurich	8092	Switzerland	lnovotny@ethz.ch
PANIAGUA DOMINGUE	Ramon	Spanish	M	Instituto de Estructura de la Materia (CSIC)	C/Serrano 121	Madrid	28006	Spain	ramon.paniagua@iem.cfmac.csic.es
PEREIRA	Silvania	Brazilian	F	Delft university of techonology	Lorenzweg 1	Delft	2628CJ	The Netherlands	s.f.pereira@tudelft.nl
PIATKOWSKI	Lukasz	Polish	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	lukasz.piatkowski@icfo.es
PISANO CHAVEZ	Eduardo	Mexican	M	CICESE	Carretera ensenada, T.Juaner 3918	Mexico	22860	Mexico	episano@cicese.edu.mx
PLAZA ORTEGA	Juan Manuel	Spanish	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	Juan-manuel.plaza@icfo.es
PONS VALENCIA	Pablo	Spanish	M	U. Zaragoza	C/Pedro Cerbuna 12	Zaragoza	50009	Spain	tar.mnl@gmail.com
PROIETTI ZACCARIA	Remo	Italian	M	Instituto Italiano di Tecnologia	Via Morego, 30	Genova	16163	Italy	remo.proietti@iit.it
QIU	Cheng-Wei	Singaporean	M	National University of Singapore	21 Lower Kent Ridge Rd	Singapore	119077	Singapore	chengwei.qiu@nus.edu.sg
QUIDANT	Romain	French	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	romain.quidant@icfo.es
RAHIMZADEH-KALALEH RODRIGUEZ	Said	Spanish	M	FOM Institute AMOLF	Science Park 102	Amsterdam	1098XG	The Netherlands	s.rodriguez@amolf.nl
RENGER	Jan	German	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	jan.renger@icfo.es
RIVOLTA	Nicolas	Belgium	M	UMONS	19 avenue Maistriau	Mons	7000	Belgium	nicolas.rivolta@umons.ac.be
ROBERTS	Alexander	German	M	University of Southern Denmark	Campusvej 55	Odense M	5230	Denmark	asro@iti.sdu.dk
ROSOLEN	Gilles	Belgium	M	UMONS	19 avenue Maistriau	Mons	7000	Belgium	gilles.rosolen@umons.ac.be
ROY	Sarathi	Indian	M	Delft University of Technology	Stevinweg 1	CN Delft	2628	The Netherlands	S.Roy@tudelft.nl
SAGGAU	Christian	Spanish	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	christian.saggau@outlook.com
SÁNCHEZ-BURILLO	Eduardo	Spanish	M	ICMA (Universidad de Zaragoza)	C/Pedro Cerbuna 12	Zaragoza	50009	Spain	edusb@unizar.es
SÁNCHEZ-GIL	Jose A	Spanish	M	Instituto de Estructura de la Materia (CSIC), Madrid	Serrano 12	Madrid	28006	Spain	j.sanchez@csic.es
SARRIUGARTE	Paulo	Spanish	M	CIC nanoGUNE	Tolosa Hiribidea 76	Donostia	20018	Spain	p.sarriugarte@nanogune.eu
SCHNELL	Martin	German	M	CIC nanoGUNE	Tolosa Hiribidea 76	Donostia	20018	Spain	m.schnell@nanogune.eu
SHUBINA	Tatiana	Russian	F	Ioffe Institute	26, Polytechnicheskaya str.	St Petersburg	194021	Russia	shubina@beam.ioffe.ru
SILVEIRO	Ivan	Portugese	N	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	ivan.silveiro@gmail.com
SINGH	Anshuman	Indian	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	anshuman.singh@icfo.es
SLIPCHENKO	Tetiana	Ukranian	F	University of Zaragoza, ICMA	Avda Valencia 51, 14A	Zaragoza	50005	Spain	slipchenkotet@gmail.com
TALEBI	Nahid	Iranian	F	Stuttgart Center for Electron Microscopy, Max Planck Institute for Intelligent Systems	Heisenbergstr. 3	Stuttgart	70569	Germany	talebi@is.mpg.de
TCHAIKINA	Elena	Russian	F	CICESE	Carretera Ensenada-Tijuana No. 3918	Ensenada	22860	Mexico	chaikina@cicese.mx
THURIN	Brice	French	M	Base4 Innovation Ltd	Broers building, JJ Thompson Avenue	Cambridge	CB3 OFA	UK	b.thurin@base4.co.uk
TOMA	Andrea	Italian	M	Istituto Italiano di Tecnologia	Via Morego, 30	Genova	16163	Italy	Andrea.Toma@iit.it
TOPPARI	Jussi	Finnish	M	University of Jyväskylä	P.O. Box 35, Survondie 9	Jyväskylá	40014	Finland	j.jussi.toppari@jyu.fi
TORMA	Paivi	Finish	F	Aalto University	Dept of Applied Science, PO Box 15100	Aalto	76	Finland	paivi.torma@aalto.fi
TOROPOV	Alexey	Russian	M	Ioffe Physical Technical Institute of Russian Academy of Sciences	26, Polytechnicheskaya str.	St Petersburg	194021	Russia	toropov@beam.ioffe.ru
VALDIVIA-VALERO	Francisco Javier	Spanish	M	Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB-CNRS/Univ.Bourgogne)	Av. Alain Savary 9	Dijon	21000	France	Francisco.Valdivia-Valero@u-bourgogne.fr
VAN HULST	Niek	Dutch	M	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	Niek.vanHulst@ICFO.eu
VANDAMME	Nicolas	French	M	LPN-CNRS	Route de Nozay	Marcoussis	91460	France	nicolas.vandamme@lpn.cnrs.fr
VISSER	Taco	Dutch	M	VU University	De Boelelaan 1105	Amsterdam	1081 HV	The Netherlands	tvisser@nat.vu.nl
VOGELGESANG	Ralf	German	M	University of Oldenburg	Ammerlaxder Meerstr. 129	Oldenburg	26129	Germany	ralf.vogelgesang@uni-oldenburg.de
WENGER	Jerome	French	M	Institut Fresnel CNRS	Av. Escadrile Normandie Niemen, Campus	Marseille	13397	France	jerome.wenger@fresnel.fr
WIENTJES	Emilie	Dutch	F	ICFO	Av. Friedrich Gauss 3	Barcelona	8860	Spain	ewientjes@hotmail.com
ZENIN	Vladimir	Ukranian	M	University of Southern Denmark	Niels Bohr alle 1	Odense	5230	Denmark	zenin@iti.sdu.dk
ZUECO	David	Spanish	M	ICMA-Unizar	C/Pedro Cerbuna 12	Zaragoza	50009	Spain	dzueco@gmail.com