



ICFOnians

Community News from the Institut de Ciències Fotòniques



EDITOR'S CORNER

The changing face of ICFO



BROOK HARDWICK
Coordinating Editor



As this issue of ICFOians goes to press, the first occupants of the new NEST building are settling into their new spaces. This very tangible indication of growth highlights the obvious fact that ICFO is developing and things are changing. Evolution, innovation and progress in an institution that is dedicated to education and research are normal. Projects are granted and completed. PhD's struggle through their research and then defend their theses. There are breakthroughs, achievements and disappointments along the way, but the norm at ICFO is change.

ICFOians is about the *people* that make ICFO the institution that it is therefore it makes sense to view the changes around us by contemplating the names and faces that are making things happen. Starting with the new faces, we have welcomed 48 new ICFOians between January and March 2012. Each will make a unique contribution to the ICFO community through their research and through the other personal and professional attributes that they will share while they are here. We will celebrate their contributions in the area of research, as we do in *Latest Advances*, their achievements and awards as in *News*, and their daily contributions to making ICFO run, as we do in *In Focus*. We will also use this newsletter as an opportunity to get to know something new about our fellow ICFOians.

The ICFO network is forever expanding. This edition will see three ICFOians "Go and Fly" after the successful completion of their theses. They will move on to continue their careers in research or industry and will remain an important part of the ICFO community as Alumni. We are pleased to follow the evolving career of former ICFOian Luat Vuong, who finished her postdoc at ICFO in 2010 and has since started as a tenure-track professor at City University of New York. We will also talk with Thomas Skordas, an adamant supporter of the Photonics community and ICFO ally from his position as head of the Photonics Unit in the European Commission's Information Society and Media DG.

ICFO will continue to evolve, always adapting to the realities of the research community and society at large. This newsletter is meant to be a constantly changing echo of life at ICFO and all ICFOians. We welcome your comments, ideas and collaboration.

Happy reading!

COVER



The new NEST building at ICFO now houses Human Resources, KTT, Communications and two ICFO start-up initiatives. The addition of this beautiful new space marks an important change in the flow of activities at ICFO. Unique fixtures which illuminated common areas (pictured on cover) as well as the natural light which casts visible spectrums around the building in the afternoon, make light the protagonist of the new spaces.

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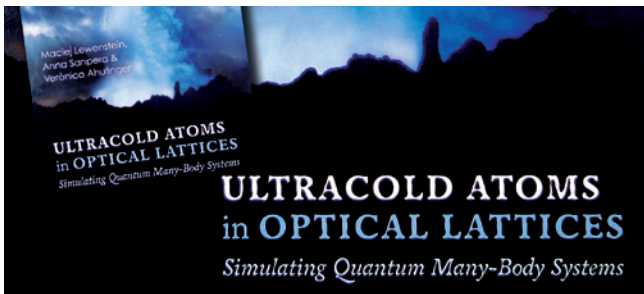


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ICFO NEWS

ICFO NEWCOMERS



A FIRST BOOK ON QUANTUM SIMULATORS

“Ultracold Atoms in Optical Lattices: Simulating Quantum Many-Body Systems” by ICREA Prof. Maciej Lewenstein and UAB professors Anna Sanpera and Veronica Ahufinger has just been released by Oxford University Press. This is the first book devoted entirely to the concept of quantum simulators of quantum many body systems and their possible realizations with ultracold atoms. The book covers practically all subjects related to this topic, from fundamentals of quantum statistical mechanics and quantum optics through extensive description of theoretical methods and concrete studies of spinor, dipolar, frustrated, and ultracold gases.

TEDx TALK BY MELIKE LAKADAMYALI

Melike Lakadamyali, Nest Fellow and leader at ICFO of the Advanced Fluorescence Imaging and Biophysics group, gave a talk about capturing life’s processes with light at the TEDxBarcelona-Science event at Barcelona’s CosmoCaixa. Prof. Melike Lakadamyali explained the recent breakthroughs in the field of light microscopy and how her group is applying these cutting-edge light microscopy techniques to the study of biological processes.

MARIA GARCIA-PARAJO AWARDED BY HFSP

In a highly selective application process with a success rate of only 3%, the project led by ICREA Prof. Maria Garcia-Parajo, leader at ICFO of the Single molecule biophotonics group, received one of the 25 prestigious Human Frontiers Science Program grants. The International Human Frontier Science Program Organization (HFSP) specifically values intercontinental collaboration and funds frontier research in a broad range of projects under the umbrella theme of “Complex mechanisms of living organisms” in the life sciences.

A CLOSE LOOK INTO FOOD INDUSTRY

ICFO’s KTT unit organized a workshop for food technology experts from IRTA (Institute of Agricultural Research and Technology). This is the first of a series of technological workshops which will offer scientific resources and technological advances to industry. The workshop focused on imaging techniques applied to animal samples from IRTA. Discussions produced an outline of pilot studies which will test a range of imaging techniques for this specific niche market.

FUNDACIÓ CX STRENGTHENS TIES WITH ICFO

In a ceremony held at La Pedrera and attended by ICFO supporters from the Regional Government of Catalonia, UPC, Fundació Cellex as well as other distinguished guests from the scientific and institutional world, Fundació CatalunyaCaixa signed an agreement to renew the Ignacio Cirac- Fundació CatalunyaCaixa Chair at ICFO as well as to support three additional initiatives at ICFO. The aim of these agreements is to promote world-class research and scientific outreach and dissemination, as well as to endorse frontier research in general.

 José Ramón Rodríguez Mechanics	 Mathieu Mivelle Postdoc Researcher	 Ariel Bendersky Postdoc Researcher	 Josselin Pello Visiting PhD-student	 Achim Woessner Postgraduate Student	 Alexander Britz Postgraduate Student
 Haiyan Ma Visiting PhD-student	 Soroush Abbasizargaleh Postgraduate Student	 Tahir Shaaran Postdoc Researcher	 Alexandros Stavrinadis Postdoc Researcher	 Francisco Remiro Herrero Research Engineer	 Ferran Martin Ciurana PhD Student
 Kevin Schädler Postgraduate Student	 Amr Helmy Visiting Professor	 Giovanni Ramirez García Visiting PhD-student	 Lara Laparra Postgraduate Student	 Ione Verdeny PhD Student	 Mickael Boulet IT Technician
 Yann Louyer Visiting Professor	 Václav Radvíla Postgraduate Student	 Ariana Chouhan Postgraduate Student	 Nathaniel Hermosa Research Fellow	 Sunil Kumar Research Fellow	 Stephan Humeniuk Ph.D. Student
 Yibing Zhao Postgraduate Student	 Arkabrata Bhattacharya Postgraduate Student	 Johnny Tam Postdoc Researcher	 Jacob Licea Rodríguez Visiting Scientist	 Fabio Gatti Postgraduate Student	 Kyra Borgman Postgraduate Student
 Fatima Yazdandoust Postgraduate Student	 Paola Mantilla Pérez Ph.D. Student	 Román López Sandoval Visiting Scientist	 Yang Lu Ph.D. Student	 Joanna Zielinska Postgraduate Student	 Margherita Mazzera Research Fellow
 Lucrezia Foltran Postgraduate Student	 Mohamed Sabri Mohamed Postgraduate Student	 Xavier Fernández Postgraduate Student	 Anna Przysiezna Visiting PhD-student	 Marcin Markiewicz Visiting PhD-student	 Florent Guichard Postgraduate Student
 José María Álvarez León Undergraduate Student	 Joonwoo Bae Visiting Scientist	 Ivan Nikitskiy Ph.D. Student	 Ion Hancu Visiting Scientist	 Mohammad Vahid Farsi Postgraduate Student	

Many new people joined ICFO or took a new position between January and March this year.

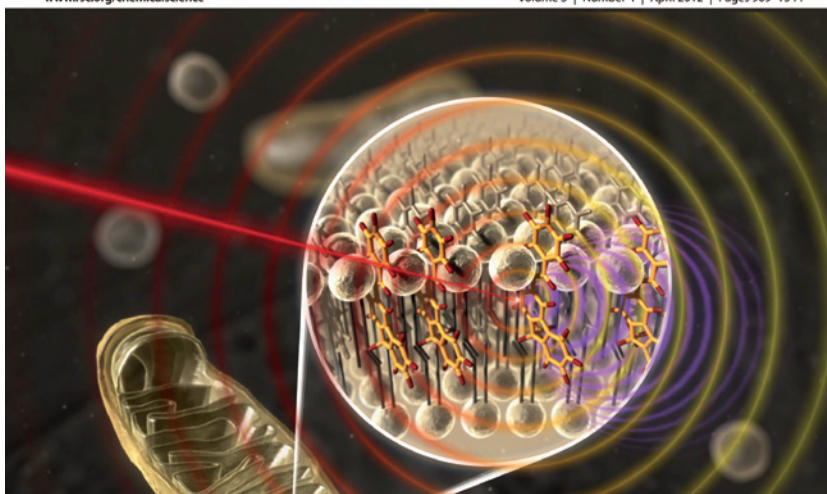


LATEST ADVANCES

Chemical Science

www.rsc.org/chemicalscience

Volume 3 | Number 4 | April 2012 | Pages 909-1344



CELL IMAGING

The picture above featured in the inside cover of *Chemical Science*. It shows the artistic impression of research carried out by an international team of researchers from U. Leuven, the Chinese Academy of Sciences and the Ultrafast imaging and nonlinear microscopy group at ICFO led by Pablo Loza-Alvarez. The research was partially conducted at ICFO's Super-Resolution Light Nanoscopy Facility (SLN@ICFO). The picture shows the arrangement of lined up fluorescent dyes inside the mitochondria membrane. Due to such alignment, the tested dyes also emit at a half the wavelength of the excitation beam (process called second-harmonic generation). By analyzing this new emission, it is possible to obtain information, at the molecular level, of the membrane architecture.

GRAPHENE TO BE USED AS LIGHT ABSORBER

Graphene is not a good absorber of light. However, many important applications of graphene, like infrared light detectors and sources, could be devised if we could make of graphene a good light absorber. Now Sukosin Thongrattanasiri and Javier García de Abajo, from FQRI-CSIC and Frank Koppens, Nest Fellow and leader at ICFO of the Nano-optoelectronics group, have demonstrated that 100% light absorption can take place if graphene is doped and patterned into a periodic array of nanodiscs. The results were published in *Physical Review Letters* and highlighted in *Physics Focus* and *Physics World*.

RECORDING CELL MECHANISMS

Cell mechanisms involved in important processes of the organism have been visualized for the first time in two collaborative projects published by ICREA Prof. Maria Garcia-Parajo. In collaboration with the AIDS Research Institute IrsiCaixa, the authors used three-dimensional video microscopy and single-particle tracking in the study of the capture of HIV virus by the defense cells of our organism. The results were published in *Traffic*. With the Nijmegen Center for Molecular Life Sciences in the Netherlands, the initial steps of cell adhesion and migration –defense against inflammation and infections, and tissue healing– were captured with super-resolution and single molecule dynamic techniques. The results appeared in the *Proceedings of the National Academy of Sciences, USA*. Both results are of strategic importance for pharmaceutical research, since deep knowledge of these details will be fundamental in the development of new drugs and therapies.

RAMAN SPECTROSCOPY FOR CANCER RESEARCH

ICFO PhD student Mónica Marro, research fellow Dr. Claudia Nieva and ICREA Prof. Dmitri Petrov, jointly with Prof. Angels Sierra of IDIBELL (Barcelona) have collaborated on a study published in *Oncogene* that evaluates the risk of lung metastasis in patients with breast cancer. The results can help in delivering personalized treatment to prevent metastasis in this organ. The research is based on the recent discovery that PRDX2 protein over-expressed in primary breast cancer tumors leads to metastasis in lungs. In order to detect and compare the chemical composition of metastatic cell variants in different organs, Marro, Nieva and Petrov used Raman spectroscopy, a powerful non-invasive technique that can provide information about the molecular composition of living cells. The research was partially sponsored by Fundació Cellex Barcelona.

BUSINESS NEWS by Silvia Carrasco

Pre-commercialization awards

ICFO has recently been awarded several grants under various highly competitive funding schemes to support innovative concepts with strong market potential. The aim is to develop pre-commercial prototypes, taking decisive steps towards introduction of new technologies in the market and in society. ICFO's participation in these programs represents the pioneering scientific research generated by ICFO researchers as well as the mission of the Knowledge & Tech Transfer Team to translate newly generated knowledge into new technologies.

ERC proof-of-concept study: Quantum Random Number Generators Antonio Acín

This February, ICREA Professor Antonio Acín received funding from the European Research Council (ERC) to support work on the project entitled MAMBO which he will carry out in collaboration with ICREA Professors Morgan Mitchell and Valerio Pruneri. The project focuses on the creation of a compact, high speed quantum generator of random numbers. In this most recent call for projects, 73 proposals were submitted and 30 innovative projects were rewarded. The Proof-of-Concept program, which was launched in March 2011, has awarded only 2 grants in Spain, including this most recent award. The other was given in October 2011 to ICREA Professor Romain Quidant, leader of the Plasmon nano-optics group also at ICFO.



Foundation CERCA funds: Neuro-Intensive Care Turgut Durduran

The department of Economy and Knowledge, through the Prova't program of the Research Centers of Catalonia (CERCA), has funded seven research projects, including one by ICFO's Medical Optics group. ICFO-MEDOPT will develop a pre-commercial, non-invasive, bed-side



device for monitoring cerebral function in patients. The initiative will bring the state-of-the-art technical innovations closer to the market. The unique part of this prototype is based on a new technology called "diffuse correlation spectroscopy" being developed at ICFO by Dr. Udo Weigel and Prof. Turgut Durduran, leader of the Medical Optics group. "Imagine an optical device next to every bed-side in a neuro-intensive care unit. Imagine this provides the clinicians with valuable information about cerebral function and leads to immense improvements in health-care. This is precisely our vision in this project", says Prof. Durduran.

"La Caixa" Obra Social: Optical Surfaces Valerio Pruneri

The Generalitat de Catalunya (Government of Catalonia, Spain) and "la Caixa" Obra Social have funded five prototype projects in five different research centers of excellence in the region, including one proposed by ICFO's Optoelectronics group. The aim of this project, led by ICREA Prof Valerio Pruneri, is to create a set of prototypes, patents and intellectual property using the technology of micro-structured optical surfaces. This technology has market potential in the hundreds of M€s and can be found in consumer products such as microelectronics, consumer electronics (tactile displays and rigid) and point-of-care, biosensing markets. While these applications and the corresponding devices may seem completely unrelated, they have in common solutions based on micro- and nano-structured optical surfaces.



ERASMUS MUNDUS By David Artigas

Europhotonics Spring School at ICFO

Spring School drew on the expertise of the prestigious participating institutions.

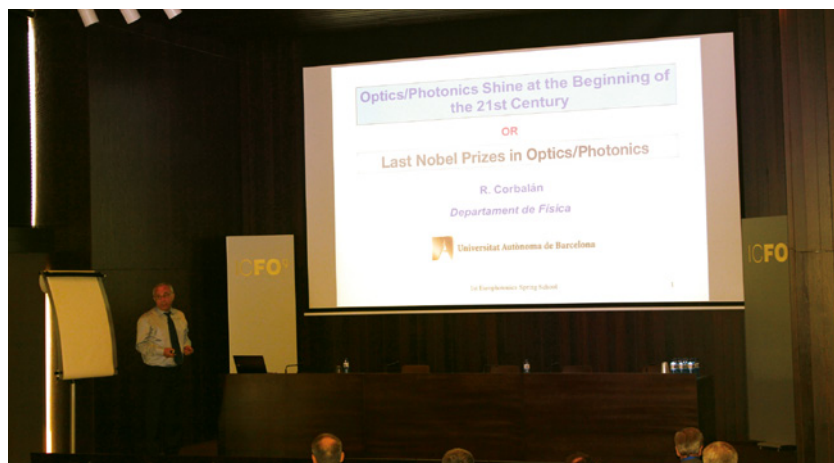
Erasmus Mundus is a program of excellence initiated by the European Commission which promotes mobility between top European learning institutions with the goal of attracting the best students in the world. Each of its programs brings together at least three European universities, offering grants which allow students to complete highly competitive postgraduate training programs. Europhotonics, which includes the Erasmus Mundus Master Course (EMMC) and Joint Doctorate (EMJD), is offered between a consortia of institutions including ICFO, Institut Fresnel (France), Karlsruhe Institute of Technology (Germany), LENS- the European Laboratory for Non-Linear Spectroscopy (Italy) and three Barcelona Universities (Universitat Politècnica de Catalunya-Barcelona Tech (UPC), Universitat de Barcelona, Universitat Autònoma de Barcelona). On March 25th -31st, ICFO was the first of the consortium organizations to hold what is to be the annual *Europhotonics Spring School*.

The Spring School was able to draw on the expertise of the prestigious participating institutions and consisted of 5 talks, each 1.5 hours in duration, and 8 courses of 3 hours duration, all taught by professors from Italy, Germany, UK, France and Barcelona. The content covered very diverse areas of photonics, including biophotonics, adaptive optics, organic fotovoltaics, and

plasmonics, among others. Within this assorted offering, ICFO Group Leader and Nest Fellow, Prof. Frank Koppens gave a session on the possibilities of graphene as a novel platform for optoelectronics and nanoscale light detection. The week's activities also included a student workshop, with oral and poster presentations.

This program was a compulsory part of the Europhotonics curriculum for second year Masters and PhD students; however students from outside Erasmus Mundus with a strong interest in the field of Photonics were also invited to take part. Participants included students and professors from the University of Paderborn (Germany) as well as the STELLUM workshop, a Marie Curie 7th framework program led by ICFO Group leader Pablo Loza-Alvarez in collaboration with Imagine Optics (France). Students from Barcelona based Universities, UB, UPC and UAB, as well as Universities in France, Finland and Germany were in attendance. In total, 110 students and professors registered for Spring School, fulfilling the organization expectations.

As often happens at academic gatherings of this type, the most successful "course" was the School Dinner which took place at the restaurant "Xalet de Montjuïc", allowing participants to enjoy spectacular night views over Barcelona.



GO & FLY

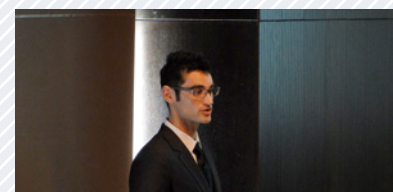
These ICFOnians have successfully defended their PhD Theses. Honoring ICFO's tradition, ICFOnians gather together to celebrate your accomplishments and to encourage you to Go & Fly! Remember that wherever you go, you will always be part of the ICFO community!



On April 18, **Dr. Lars Neumann** graduated with a thesis on nano-antenna structures for optical control and single photon emission supervised by ICREA Prof. Niek van Hulst, leader of the Molecular nanophotonics group.



On February 21, **Dr. Didit Yudistira** graduated with a thesis on micro-structured ferroelectric superlattice for efficient acousto-optic devices. His thesis was supervised by ICREA Prof. Valerio Pruneri, leader of the Optoelectronics group, and co-supervised by Dr. Davide Janner



Also on February 21, **Dr. Domenico Tulli** graduated with the thesis 'Micro-nano structured Electro-Optic devices in LiNbO3 for communication and sensing', and was also supervised by Prof. Pruneri and Dr. Janner.



IN FOCUS by Oriol Bardés



Oriol Bardés:

“The people I work with are still one of the highlights of the job”



Most of the team that has been at ICFO almost since the beginning will agree that as ICFO has changed over the years, so have we. It was February 2005 when I became an ICFOnian. I was 27 years old, had studied Physics and Electronic Engineering at Universitat de Barcelona, and had my first professional experience in the world of IT consulting. My University studies gave me a strong scientific and technological background, so an up-and-coming research center like ICFO was a great fit for me. In addition, the commute to the Nexus Building on the UPC campus was only a 5 minute walk from home!

We lived in tight quarters in those early days, occupying a dozen offices with thin walls where nothing happened in one office that went unnoticed by the rest. My first officemates were two noisy desktop computers, assembled in-house to meet the needs of ICFO at the time. We had yet to develop our own IT network and were integrated in the UPC system. ICFO was a small, young, close-knit community which celebrated events like the first PhD thesis defense as a collective achievement. In this atmosphere, I met my partner who was one of the very first ICFOnians on board and with whom I now

have 2 children. It is hard to imagine that any place I could go in the future could possibly change my life in all respects like ICFO has!

Fast forwarding just a few years, many of the details of the picture have changed. ICFO moved to Castelldefels which made a radical difference in my commute. The growing number of ICFOnians has made it impossible to know everyone by name. The complexity of ICFO's IT infrastructure as evolved with new research groups, both theoretical and experimental, introducing new needs and increased heterogeneity from an IT standpoint: different systems, more calculation capacity, increased storage space, new services...

I have always found the planning of complex projects like the network of the NEST building to be, from a content standpoint, the most interesting part of my work. From a personal perspective, the people I work with are still one of the highlights of the job. In the IT Unit, not only am I surrounded by amazingly smart people, they make it fun to come to work. There is no question about having support from these guys on the most difficult or even inconvenient projects- we are really a team.

One of the particularities of the work of the IT Unit is that many of the tasks we undertake are often invisible to others. As long as the system is running, it's easy to forget about what is going on behind the screen.

CURIOUS IT RELATED FACTS

- The IT Unit receives regular objections about changes in Webmail, when in fact the user has tried to access the webmail of ICFO-Instituto Camélias de Oftalmología, (www.icof.es) by mistake.
- 70% of the mail directed to ICFO via the internet is rejected as SPAM.
- Each week, ICFO receives approximately 12000 legitimate mails.
- On average, IT receives about 300 support requests per month
- Our website currently receives around 400 external visits every day
- The monthly environmental impact of ICFOnian printing is approximately equivalent to the emission of 120Kg of CO₂

**Oriol Bardés is the head of the IT Unit at ICFO*

WHO'S THAT ICFONIAN

ICFOnians are multiplying!

Can you match the babies, all born in 2011, to the corresponding ICFOnians?

*Careful- one ICFOnian had two new arrivals, and one of the babies pictured has two ICFOnian parents.



Frank Koppens



Marta García



Michal Wodyla



Olga Borovkova



Valery Lobanov



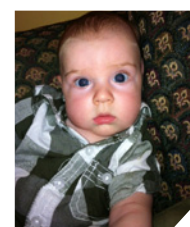
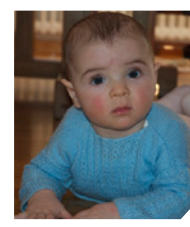
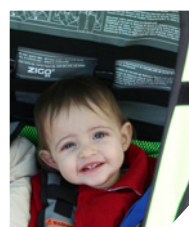
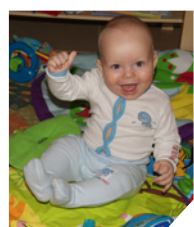
Vittoria Finazzi



Jon Donner



Xavier Menino



BEYOND ICFO By Luat Vuong

Dear ICFOnians,

Back in 2009 in my ICFO Spanish language class, we were asked to answer “It is now the year 2025- What have you been doing for the last 16 years?” I remember declaring in my meager Spanish, “I have completed my 8th postdoc and I have achieved expat status in 8 moderately-exotic countries.” Freedom and travel were important to me, epitomized in the internationalism and spirit of ICFO. As a postdoc, I had a community of friendly peers and many opportunities to learn. Why would I rush towards assuming the real PI responsibilities if I could avoid it?

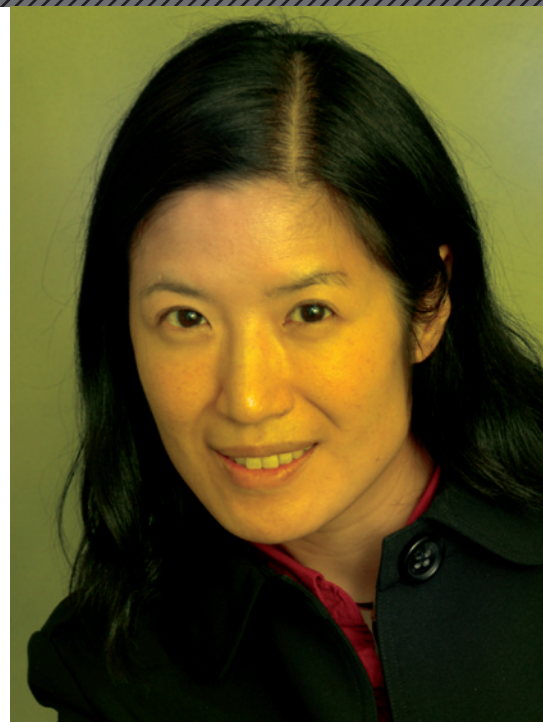
Well, it’s been about 20 months since I left my postdoc at ICFO and began my job at the City University of New York as a tenure-track professor. I suppose I was lured by 1) the chance to pursue my own research ideas 2) the opportunity to work at a public university 3) the small but accomplished optics faculty in my current department 4) and of course, New York City.

As a PI, though, the reality is that I am far from ‘free’. I am a part-time administrator, a part-time teacher, my Ph.D. students’ advisor, and the manager of a lab that seems as if it will perpetually be in its nascent ‘startup’ mode. Starting a lab from scratch is hard! I have had to learn to be aggressive when fighting for resources. I have also had to manage the paradoxical feeling of being alone; even though constantly surrounded by people, it is me alone who must make big decisions on how money is spent. Frustrations are unavoidable with real responsibilities.

But there are bright points as well. My first manuscripts will get sent out this spring and I was recently awarded a 5-year grant. I’m very excited by my group’s new work with chiral nanocomposites and the photo-induced magnetization of plasmonic materials. I find relief in the creativity, curiosity and devotion of my students. Also, I have confronted my nomadic tendencies by buying a Brooklyn apartment... home improvement has become a small but rewarding hobby, too. A lot can happen in 20 months!

I hope all is going well with you, dear ICFOnians! Perhaps we shall meet again, at a conference, in New York, or who knows where!! If I had a piece of advice for you, young whipper-snapper gradstudents, it would be to appreciate your PI academic guardians, who endure more stress and shoulder more responsibility than you know so that you may, even if over only a short duration of time, simply learn. My advice to postdocs is to have as much fun as you can—the future is uncertain and you never know when your plans will change.

Keep in touch!



**Luat Vuong is a tenure-track professor at Queens College, CUNY Graduate Center. She directs the Chiral Nanocomposites Research Group and was recently awarded the National Science Foundation Career Award (2012-2017)*

COMMUNITY: SANT JORDI @ ICFO



ICFOnians' recommended reading list

TESLA-MASTER OF LIGHTNING & TESLA-MAN OUT OF TIME, BY MARGARET CHENEY.

CAN YAO

“This biography is like a magical time machine, which has brought me easily to the era of a real genius.”

THE SAVAGE DETECTIVES (ORIGINAL: LOS DETECTIVES SALVAJES), BY ROBERTO BOLANO.

MARIA BERNECHEA

“High level literature, completely different to anything you have read before, original, fresh, wild... Just read it.”

ON BULLSHIT, BY HARRY G. FRANKFURT.

JUAN TORRES

“A delightful book by a philosopher, published by Princeton university press. The book is brief and cheap. The topic? Just read how it begins: “one of the most salient features of our cultures is that there is so much bullshit”.

THE ENGLISH PATIENT, BY MICHAEL ONDAATJE.

MORGAN MITCHELL

“A Canadian nurse, an Italian thief, an Indian sapper and a dying English explorer slowly reveal intense passions, cruel twists of fate, and brave efforts to swim against the tide of history. Most romantic book I ever read.”

CONSCIOUSNESS EXPLAINED, BY DANIEL DENNETT.

PIOTR MIGDAL

“An exceptionally well-written book using psychological experiments to support philosophy of mind. Is your red the same as my red? Do we think in words or in pictures?”

THE BOY IN THE STRIPED PYJAMAS, BY JOHN BOYNE.

DOLORS MATEU

“John Boyne took two and half days to write this book and it took me half a day to read! It makes you think about how different things are when seen from one perspective or another.”

THE TANNERS, BY ROBERT WALSER.

TXOMIN MARTINO

“A fascinating story based on a poetic character who illustrates the often meaningless concept of “success”.

FREAKONOMICS, BY STEVE LEVITT AND STEPHEN DUBNER.

JULI CESPEDES

“How to analyze anything in the world, even the most unusual things, from an economic perspective.”

HIGH PROFILE



Thomas Skordas:

“Photonics in Europe has all the essential ingredients for success”



Dr. Thomas Skordas is the head of the Photonics Unit in the European Commission’s Information Society and Media DG. His unit backs the potential of photonics as a pervasive and key-enabling technology of the 21st century.

In your opinion, how important for technological and societal advances is photonics research?

As one of today’s key enabling technologies, photonics is driving innovation and growth in many key markets such as communications, laser-assisted manufacturing, healthcare, energy production and lighting, or safety and security. It has a pervasive influence which enables process, product and service innovation throughout the economy. According to the findings of a study we financed last year more than 20% of the European economy and 10% of the workforce depend on photonics, which impacts around 30 million jobs¹.

What would you say are the current strengths and weaknesses of photonics research in Europe?

Overall, photonics in Europe has all the essential ingredients for success: many high-quality research groups in universities and public research centres; a world-class industry with hundreds of innovative SMEs; increasingly well-organised regional innovation clusters and national technology platforms; increased national and European research funding; and an outstanding co-operation of research stakeholders through the Photonics21 European technology platform. Structurally, Europe needs to focus on turning its research advances into marketable products and services, and in maintaining its manufacturing and production capabilities. Horizon 2020, the new framework programme for research and innovation for the period 2014-2020, proposed by the Com-

mission last November, addresses these two major areas of concern.

What do you see as the greatest opportunities in the field in the next 5-10 years?

Huge opportunities are coming into focus in areas such as new (nano) structured materials; in photonics technologies exploiting the effects at the limits of light-matter interaction; in new components for quantum communication, optical routing or for high performance, extreme high power laser sources. Breakthroughs in these areas combined with further progress in the large-scale integration of photonic components into photonic integrated circuits will make photonics THE technology of the 21st century.

How would you suggest that young scientists prepare for these challenges and opportunities?

Increasingly discoveries are taking place at the frontier between scientific fields. Our talented young scientists need to combine their traditional skills with increased capabilities to collaborate in open and multidisciplinary research environments. Additionally, young scientists should develop entrepreneurial skills; using every opportunity they will have in their career to turn great ideas into concrete, marketable solutions. The Commission is offering opportunities to further careers in research, for example through the Marie Curie mobility grants, the European Research Council grants or via opportunities to participate in EU-funded R&D projects.

Can you tell us a little about your scientific background and career path?

After receiving my diploma of electrical engineering in 1984 in my mother country, Greece, I moved to France to pursue my PhD in Computer Science (Imaging and Robotics). I stayed in France after my PhD to work as a research engineer in EU-funded R&D projects which sparked my ambition to work in a role where I might one day have some influence in the way research and innovation are done in Europe. I joined the Commission in 1995 as a Scientific Officer and in July 2009, became the head of the Photonics Unit in the Commission’s Information Society and Media DG.

Any advice for young scientists interested in working for the European Commission?

The Commission is a challenging, multicultural and multilingual environment. My advice before pursuing a career in the Commission is to acquire a solid knowledge base and experience in European research, in managing R&D projects and in working in multicultural environments.

* The views expressed in the article are the sole responsibility of the author and in no way represent the view of the European Commission and its services.

1. Study SMART 2009/0066 “The Leverage Effect of Photonics Technologies – the European Perspective”,

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