



CCT Weekly October 9 - October 15, 2011

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Plasmonics Research at the LSU CCT Aims for New Ways to Manipulate Light at the Nanoscale

Controlling the interaction between light and matter is fundamental to science and technology, and heretofore challenging. In conventional optics, light can only be controlled on length scales down to the order of the wavelength of light. However, a new paradigm called plasmonics has emerged—an approach based on surface plasmons, which are light waves that propagate along metal surfaces and enable light guiding and manipulation at the nanoscale.

Using metallic nanostructures to manipulate light at nanometric length scales has opened exciting opportunities. Plasmonics is being explored for its potential in subwavelength optics, data storage, light generation, lithography, microscopy, and biophotonics. Yet the exploration of functional nanoplasmonic structures and devices is still in a very early stage. The realization of such devices would enable for the first time controlling light and enhancing light-matter interactions at the nanoscale, beyond the diffraction limit, something that is fundamentally impossible to achieve with dielectric-based device components. This in turn could have profound implications for computing, communications, and energy applications.

Georgios Veronis, assistant professor of the LSU Department of Electrical & Computer Engineering and the Center for Computation & Technology, has received funding in the amount of \$240,000 from the National Science Foundation to explore nanoscale plasmonic structures and devices for enhancement of nonlinear optical effects, all-optical absorption switches, ultra-compact sensors, and plasmon-enhanced thin-film photovoltaic solar cells. The project is called "Plasmonic Devices for Controlling Light at the Nanoscale."

"The development of these nanoscale devices and their integration will be challenging," said Veronis. "It is therefore important to theoretically and computationally explore this area and to identify the most promising structures for specific device applications, such as sensing, switching, and photovoltaics. We will undertake a series of large-scale simulations to explore new plasmonic structures and devices for manipulating light and enhancing light-matter interactions at the nanoscale through the excitation of subwavelength plasmonic modes. The results of the project may lead to new opportunities for device applications, which will represent important breakthroughs in integrated optics, optical information processing, and renewable energy sources."

For more information on this or other research at the LSU Center for Computation & Technology, visit: <http://www.cct.lsu.edu/>.

Pats on the back:

- Jorge Pullin is coauthor of a book with Prof. Rodolfo Gambini of the University of the Republic of Uruguay, titled "A first course in loop quantum gravity" The book has been published by Oxford University Press and it is the first textbook to cover the material at an undergraduate level. It was based on a course Pullin taught at LSU. There is more info, including some reviews at <http://ukcatalogue.oup.com/product/9780199590759.do>.
- Mark Jarrell received an award from the Board of Regents titled "La-Sigma Student Retreat." The award is for \$3,628 for three months.

CCT in the news:

Call: Symposium for Laptop Ensembles and Orchestras (SLEO 2012)

Source: [THESADDJ.COM](http://thesaddj.com)

Please Note:

- CCT will be updating the faculty, staff and postdoc directories on the website with professional LSU portraits. We are asking that all faculty, staff and postdocs (no graduate or undergraduate students) who do not already have one, choose one of the three sessions below to take one. There is no need to schedule a date/time, just show up at University Relations' office during the given dates/times. It will only take 5-10 minutes per person. If you have already taken a portrait, University Relations will send us the file. University Relations ("Lakeshore House") is located near the Lod Cook Alumni Center on W. Lakeshore Dr., in between the Phi Kappa Psi Fraternity and Kappa Delta Sorority. The photo studio is on the third floor, room 314. We ask that men wear a suit jacket/blazer with a tie and that women wear a suit jacket/blazer. The photo is from the waist up, so it does not matter what you wear on the bottom. **Available dates: Wednesday, October 12th, 9am-noon.** If you are unable to make this session, please contact either of the people below to schedule an alternate date:

Eddy Perez (eperez2@lsu.edu; 578-3823)

Jim Zietz (jzietz@lsu.edu; 578-3824)

- CCT invites faculty, staff, students and special guests to its 10th Year Celebration of the center's successful growth from its birth as "LSU CAPITAL" to a vibrant center for interdisciplinary computational research, training, and economic development. The celebration is October 26, 2011 (8:30 A.M. - 5:30 P.M.) at the LSU Energy, Coast & Environment Building Rotunda Auditorium and Lobby. Lunch will be provided free of charge in the Rotunda. Please RSVP to susie@cct.lsu.edu to reserve your lunch seat (deadline: October 18th). For more information, visit <http://www.cct.lsu.edu/10yr>

- The 2011 ACM ICPC South Central USA Regional Programming Contest is now accepting team entries for the October 28 and 29th event. The ACM International Collegiate Programming Contest (ICPC) provides college students with opportunities to interact with students from other universities and to sharpen and demonstrate their problem-solving, programming, and teamwork skills. The contest provides a platform for ACM, industry, and academia to encourage and focus public attention on the next generation of computing professionals as they pursue excellence. The contest is a two-tiered competition among teams of students representing institutions of higher education. Teams first compete in regional contests held around the world from September to November each year. The winning team from each regional contest qualifies to advance to the ACM International Collegiate Programming Contest World Finals, typically held the following March to mid-April. Additional high-ranking teams may be invited to the World Finals as wild card teams. Fees are \$175.00 per team. Registration fees are for a team of three members and one coach. Guests and alternates are an additional \$30 each. (See complete registration rules at: <http://icpc.baylor.edu/icpc/regionals/About.htm>). The South Central USA Regionals will take place on October 28 and 29th at
 - Louisiana State University, Baton Rouge, Louisiana
 - Baylor University, Waco, Texas
 - La Tourneau University, Longview, Texas
 - East Central University, Ada, Oklahoma
 For more information, or to register a team, visit: <http://icpc.baylor.edu/icpc/regionals/>.

- Electronic Arts Recruiting LSU Students for Internships: Electronic Arts Inc. will be visiting the LSU campus October 24-25, 2011, to recruit students for their intern positions as follows: software engineer; designer; technical artist; online software engineer; software quality assurance engineer; and business analyst, analytics. Deadline to submit resumes and apply is Monday, October 17, 2011. For more information, visit <http://www.cct.lsu.edu/eaintern>.
- **Register for SC11 by Oct. 17th and save up to \$250!** The SC11 early registration deadline is October 17th. The fee structure for SC11 makes it even more advantageous to register early this year. Registering early can save you up to \$250 off your technical program registration (depending on your registration category). Also, registering by Oct. 17th can save you up to \$305 off tutorial registration. <http://sc11.supercomputing.org/?pg=registration.html>.
- Submissions for the 2012 Red Stick International Animation Festival are now being accepted thru January 6th. Visit <http://www.redstickfestival.org/competition/submissions/> for details.
- The LSU Backgammon Club is looking for new members. All faculty, students, beginners and experts are invited to join. The club will teach and coach players of all levels and field a team from the group to compete against Harvard, Yale, Princeton and Northwestern and many other fine schools in the national program. Please contact Phil Simborg (psimborg@shcglobel.net) if you are interested in joining.
- TRIPLE EX (Excite, Explore, Experiment) - 3rd Annual Conference for Undergraduate Research, November 4, 2011 (8:00AM - 4:00 PM), LSU Union Cotillion Ballroom. The LSU Office of Strategic Initiatives and The Cain Center are sponsoring a Conference for Undergraduate Student Research. Submissions are open until October 3rd for posters and oral presentations. For more information, visit <http://www.i3.lsu.edu/tripleex>.
- Louisiana EPSCoR is hosting the greatly anticipated National Science Foundation workshop, Science: Becoming the Messenger, on November 17, 2011, at the Baton Rouge Marriott. The 1-day workshop provides targeted communications training to Researchers, Faculty & Postdocs, Students, Public Relations Officers and Communicators. The NSF's Office of Legislative and Public Affairs has assembled a team of nationally renowned communicators to provide this training. Participants will learn how to craft a message and communicate with a variety of audiences, explore new media, pick up live camera interview skills and more. There is no registration fee to attend but pre-registration is required. For more information and to register, visit http://www.nsf.gov/events/event_summ.jsp?cntn_id=121922&org=NSF.
- Post Your Part-time Jobs for FREE through Careers2Geaux: Now that school is back in session, our students looking for part-time jobs. Through Careers2Geaux, you may post any position type, including your part-time opportunities, for FREE! This system is password-protected and available to LSU students, faculty, staff, and registered alumni 24 hours a day, seven days a week. To list your position(s) in Careers2Geaux, click the Careers2Geaux link <https://lsu-csm.symplicity.com/employers> and follow the instructions for creating an account. Once you enter the information for your position, the status of your posting will remain "pending" until reviewed by a staff member. Open positions are posted for 45 days. If you have any questions, please contact Amy Caillouet, Administrative Coordinator, at 225-578-2162 or email at amyc@lsu.edu.
- Prior approval is required for Special Meal Requests. Employees who make meal purchases without prior approvals may find that they must cover the cost of any monies spent for an unapproved event out of pocket. Dine-in restaurant meals are not allowed on LaCarte credit cards. Please contact Susie McGlone (susie@cct.lsu.edu) prior to any special meal with visitor(s) to file the appropriate request for approval. Prior approval could take up to two weeks, so please plan accordingly.
- Please remember to send your news concerning grants, awards, conferences, or other pertinent information to CCT Event Coordinator Jennifer Fontenot at jennifer@cct.lsu.edu.
- Follow CCT with social media to access photos and see news, events or updated information. These pages are public; you do not need an account to view the information.
 - o [Facebook group](#) : LSU Center for Computation & Technology
 - o [Twitter](#) : LSUCCT
 - o [YouTube channel](#) : LSUCCT

Interest groups:

- **MAG (Mobile App-Art-Action Group):** Everyone interested in the potential for Mobile Apps is invited to come and add their vision for these revolutionary devices. Meetings are schedule November 2nd and December 7th, 5:00-6:00 pm. For more information, visit <http://www.cct.lsu.edu/site.php?pageID=63&newsID=1402> . Contact: Jesse Allison (italison@lsu.edu)
- **GPU:** meets weekly (Wednesdays @ 2:30 pm in 338 Johnston) and encourages participation from anyone who would like to join in the discussions. Join the mailing list: lasigma-gpu@loni.org. Contact: Bhupender Thakur (bthakur@cct.lsu.edu)

Upcoming events:

October 19: [Training: Intro to OpenMP Programming](#)
October 24-25: [Electronic Arts Recruitment @ LSU](#)
October 24: Cinema for the Ears
October 26: [CCT's 10th Year Celebration](#)
October 26: [Training: Bash Scripting Tutorial](#)
October 28-29: [ACM ICPC South Central USA Regional Programming Contest](#)
Thru November 1: [Symposium on Laptop Ensembles & Orchestras accepting entries](#)
November 2: [Training: Make Tutorial](#)
November 10: [Red Stick Animation Festival Fall Retrospective](#)
November 12-18: [SC11](#)
Thru January 6, 2012: [Red Stick International Animation Festival "Best of the Fest" accepting entries](#)

Upcoming Grant Deadlines:

Note: Please check the [CCT deadline Web site](#), since it is updated daily.

[Partnerships for International Research and Education \(PIRE\)](#)

October 19, 2011 10:00 am
At Most \$ 4,000,000.00 available

[Sustainability Research Networks Competition \(SRN\)](#)

December 1, 2011 10:00 am
At Most \$ 12,000,000.00 available

[Software Infrastructure for Sustained Innovation \(SI2\) Scientific Software Innovation Institutes \(S2I2\)](#)

December 14, 2011 10:00 am
At least \$500,000.00 available

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