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[Nanoplasmonics Enables Label-Free Measurement of Bacteria Formation](#)

Posted: October 21, 2018

Using nanochip technology and a targeted beam of light, scientists have devised a real-time, label-free way to monitor biofilms, an important component in the search for alternatives to bacteria-resistant antibiotics. The team from the Okinawa Institute of Science and Technology (OIST) wanted to gain a better understanding of the biochemical reactions that allow bacteria to produce [Read More...](#)

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[Light switch: Scientists develop method to control nanoscale manipulation in high-powered microscopes](#)

Posted: October 12, 2018

Researchers from Japan have taken a step toward faster and more advanced electronics by developing a a better way to measure and manipulate conductive materials through scanning tunneling microscopy. The team published their results in July in Nano Letters, an American Chemical Society journal. Scientists from the University of Tokyo, Yokohama National University, and the Central [Read More...](#)

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[Strong coupling and induced transparency at room temperature with single quantum dots and gap plasmons](#)

Posted: October 8, 2018

Coherent coupling between plasmons and transition dipole moments in emitters can lead to two distinct spectral effects: vacuum Rabi splitting at strong coupling strengths, and induced transparency (also known as Fano interference) at intermediate coupling strengths. Achieving either strong or intermediate coupling between a single emitter and a localized plasmon resonance has the potential to [Read More...](#)

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[Impact of pump wavelength on terahertz emission of a cavity-enhanced spintronic trilayer](#)

Posted: October 7, 2018

We systematically study the pump-wavelength dependence of terahertz pulse generation in thin-film spintronic THz emitters composed of a ferromagnetic Fe layer between adjacent nonmagnetic W and Pt layers. We find that the efficiency of THz generation is essentially flat for excitation by 150 fs pulses with center wavelengths ranging from 900 to 1500 nm, demonstrating [Read More...](#)

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[Our new paper in Superlattices and](#)

[microstructures](#)

Posted: September 27, 2018

Congratulations for the publication of paper " Fantastic Exciton-plasmon coupling in Dye-doped Poly (vinyl pyrrolidone) /Gold one-dimensional Nano-grating " By Asgari, S. M. Hamidi
The present study aimed to investigate the coupling between the exciton in dye medium and plasmon in gold nano-grating. To this aim, at first, Polyvinylpyrrolidone (Rhodamine B) /Gold nano-grating samples were prepared with [Read More...](#)

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[Neural Networks Predict Crystal Stability](#)

Posted: September 22, 2018

SAN DIEGO, Sept. 21, 2018 – Researchers at the University of California, San Diego (UCSD) are using neural networks to predict the stability of materials in two classes of crystals: garnets and perovskites. They trained artificial neural networks to predict a crystal's formation energy using just two inputs: electronegativity and ionic radius of the constituent [Read More...](#)

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[Flat optics: from high-performance metalenses to structured light](#)

Posted: September 15, 2018

In this keynote presentation, Federico Capasso, professor of applied physics at Harvard University, presents advances in dielectric metalenses in the visible, which correct spherical, coma, and chromatic aberrations. Capasso begins his talk by reminding the audience that conventional lenses still require

a very complex type of technology as it takes several lenses to correct aberrations.[Read More...](#)

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[Our new paper in Sylwan Nano Journal](#)

Posted: September 15, 2018

Congratulations for the publication of paper "Thermoplasmonic response of Au@SiO₂ core-shell nanoparticles in deionized water and poly-vinylpyrrolidone matrix" Maher Abdulfadhil Gatea, Hussein A. Jawad, M. Mosleh, S. M. Hamidi Metal-dielectric core-shell nanoparticles strongly absorb light and convert into an efficient localized heat source in the presence of electromagnetic radiation at their plasmonic resonance. This process can[Read More...](#)

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[Our new paper in Journal of magnetism and magnetic materials](#)

Posted: September 10, 2018

Congratulations for the publication of paper "Relaxation time dependencies of optically detected magnetic resonance harmonics in highly sensitive Mx magnetometers" Ranjbaran, M.M. Tehrani, S.M. Hamidi, S.M.H. Khalkhali Measurement of extremely weak magnetic fields in double-resonance atomic magnetometers based on resonant optical excitation has been an active area of research in recent years. Magnetometer sensitivity can[Read More...](#)

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[3-D Printing Graphene Aerogels](#)

Posted: September 9, 2018

A U.S. research team from Virginia Tech and the Lawrence Livermore National Lab (LLNL) has demonstrated a light-based approach for 3-D printing strong, lightweight, porous graphene aerogels—at a resolution an order of magnitude finer than other techniques. 3-D printing is well advanced for polymer foams, with some notable success, but is still an active area of [Read More...](#)

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