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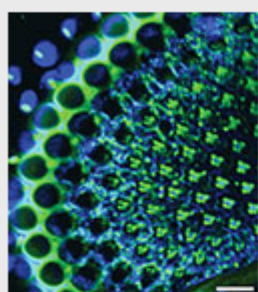
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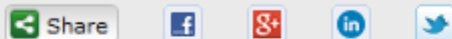
Wednesday, May 27, 2015

Femtosecond Pulses: Control Is Key to New Discoveries



Ultrafast lasers have transformed the worlds of clinical research by revealing biological mechanisms in greater detail than previously possible. Femtosecond lasers are the critically enabling tools in multiphoton microscopy, where shorter pulses generally enable brighter images.

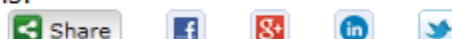
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Nanodiamonds Shine New Light on Bio Applications

Defect complexes in nanodiamond particles, which consist of vacancies trapped by nitrogen atoms, form different color centers depending on the nitrogen state present in the diamond. New research into these color centers indicates that nanodiamond particles are ideal for molecular-imaging and cell-labeling bioprobe applications.

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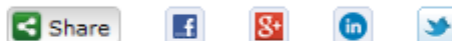


Fluorescent Probe Shows Promise in Osteoarthritis Treatment



Tested in mice, the probe detected the activity leading to cartilage loss in joints. As the osteoarthritis progressed, the probes' brightness levels increased. This was the first study to demonstrate that NIR fluorescence can be used to detect osteoarthritis changes, according to a research team led by Tufts University School of Medicine.

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Modified Genes Triggered by Blue Light

Crossing a bacterium's viral defense system with a flower's response to the sun yields a light-based trigger for genes. This type of control could enable deeper study of specific genes' functions, create complex systems for growing tissue and perhaps healing technologies, according to researchers at Duke University.

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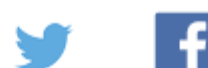
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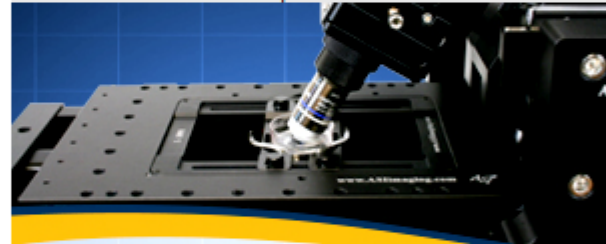
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