

### Weekly Calendar & News

October 1-7, 2017

### Departmental Colloquium

**No Colloquium This Week**

### LSU Physics & Astronomy in the News

- LSU Physicist Awarded New NSF Research Fellowship - Alumna and Assistant Professor Kristina Launey one of 30 to receive fellowship  
[http://www.lsu.edu/physics/news/2017/09/launey\\_nsf\\_fellowship.php](http://www.lsu.edu/physics/news/2017/09/launey_nsf_fellowship.php)

### Events

- **Landolt Astronomical Observatory Public Observing: Saturn, Ring Nebula, Gibbous Moon**
  - **Where:** Nicholson Hall Roof - Landolt Observatory
  - **When:** Sunday, October 1, 2017 7:30 PM - 8:30 PM



Reconnect with fellow alumni and former professors and meet current students. Enjoy jambalaya and LN<sub>2</sub> ice cream in the Quad.

Join us for  
Physics &  
Astronomy  
ALUMNI  
TAILGATE

Saturday  
October 14  
3-6 p.m.  
Nicholson Hall

# 2017 BENJAMIN PIERRE BOUSSERT LECTURE

## SPEAKER

### Dr Emory M. Chan

**Staff Scientist, Inorganic Nanostructures,  
The Molecular Foundry,  
Lawrence Berkeley National Laboratory**  
[http://foundry.lbl.gov/people/emory\\_chan.html](http://foundry.lbl.gov/people/emory_chan.html)

## ABSTRACT

### *High-Throughput Design of Doped Colloidal Nanocrystals*

Colloidal inorganic nanocrystals exhibit precise morphologies and tunable properties, making them essential components for nanophotonic devices and biological imaging. Our research explores the reaction networks that govern the controlled synthesis of inorganic nanoparticles, and we investigate the photophysical networks that govern the optical properties of upconverting nanoparticles. To develop a holistic understanding of these intricate networks, we use combinatorial and high-throughput robotic techniques to map the dynamics of these networks across material compositions and reaction conditions. Using these methods, we manipulate the energy transfer pathways of lanthanide-doped upconverting nanoparticles, which combine near-infrared photons into visible light. Combinatorial screening and theoretical modeling reveal lanthanide dopant compositions that enable imaging of single upconverting nanoparticles comparable in size to fluorescent proteins and reveal nanoparticle compositions that enable excitation at the optimal wavelengths for imaging through tissue. Finally, we demonstrate that these nanoparticles can be used to fabricate microscale, upconverted lasers for biological sensing and stimulation.



Dr. Emory Chan is a Staff Scientist at the Molecular Foundry, a US Department of Energy nanoscience user facility at Lawrence Berkeley National Laboratory. Dr Chan's research interests include the combinatorial and high-throughput synthesis of semiconductor nanocrystals and lanthanide-doped upconverting nanoparticles. He received a BS in Chemistry from Stanford University. Dr Chan performed his doctoral research on with Professor Paul Alivisatos and Professor Richard Mathies in the Department of Chemistry at the University of California at Berkeley. Prior to his appointment as Staff Scientist at the Molecular Foundry, Dr Chan was a postdoc with Dr Delia Milliron and later served on the technical staff at the Foundry.

## WHEN

**Friday, October 6th  
3:30pm**

## WHERE

**Life Sciences  
Annex Auditorium**

## RECEPTION

*following the seminar at the*  
**Benjamin Pierre Boussert  
Conference Room  
(CMB100)**