Frontiers and Techniques in Plant Science

June 28 - July 18, 2019 Applications Due: March 15

Cold Spring Harbor Laboratory
MEETINGS & COURSES PROGRAM

Cold Spring Harbor, New York
web: **meetings.cshl.edu/plant19**

INSTRUCTORS

Sean Cutler, University of California Riverside

José Dinneny, Stanford University

Julie Law, The Salk institute

Uta Paszkowski, University of Cambridge, UK

The Frontiers and Techniques in Plant Science course provides an intensive overview of topics in genomics, genetics, physiology, biochemistry, development, and evolution and hands-on experiences in molecular, imaging, computational and high throughput approaches to understanding plant biology. It emphasizes recent results from model organisms including Arabidopsis, maize and tomato as well as a variety of other plants and provides an introduction to current methods used in basic and applied plant biology, both theoretically and practically. The seminar series will include plant morphology and anatomy, development, evolution, light and mechanical biology, hormones, small RNAs and epigenetic inheritance, biotic and abiotic interactions, plant biochemistry, crop domestication, and applications addressing current agronomic problems. Speakers will provide expert overviews of their fields, followed by in-depth discussions of their own work. The laboratory sessions will provide exposure to cutting edge experimental and computational techniques currently used in plant research. These include approaches for studying plant development, regulatory networks, transient gene expression, cell-type specific gene expression analysis, computational large-scale data analysis, applications of fluorescent proteins including live imaging, genome editing, and chromatin immunoprecipitation.

TOPICS

- **Computational tools & environments for genome assembly**
- **Plant imaging and image analysis**
- **Design and use of fluorescent sensors**
- **Transcriptomics**
- **Identification of quantitative trait loci**
- **Mapping by sequencing**
- **Mathematical modeling of development and hormone action**
- **Purification of cell-type specific nuclei (INTACT)**
- **High throughput cloning**

2019 SPEAKERS

Julia Bailey-Serres, University of California, Riverside
David Baulcombe, University of Cambridge, UK
Dominique Bergmann, Stanford University
Roger Deal, Emory University
Liam Dolan, University of Oxford, UK
Xinnian Dong, Duke University
Elizabeth Haswell, Washington University in St. Louis
Julian Hibberd, University of Cambridge, UK
Georg Jander, Boyce Thompson Institute for Plant Research
Mark Johnson, Brown University
Alexander Jones, University of Cambridge, UK
Toby Kellogg, Donald Danforth Plant Science Center
Robert Martienssen, Cold Spring Harbor Laboratory
Giles Oldroyd, John Innes Center, UK
Ullas Pedmale, Cold Spring Harbor Laboratory
Nicholas Provart, University of Toronto, Canada
Chris Rogers, University of Cambridge, UK
Karin Schumacher, University of Heidelberg, Germany
Neelima Sinha, University of California, Davis
Chris Surridge, Nature Plants, UK
Dan Voytas, University of Minnesota
Olivia Wilkins, McGill University, Canada
Jason Williams, Cold Spring Harbor Laboratory