

# M229: Advanced Topics in Magnetic Resonance Imaging

Spring 2020: 4 Units

Room: 300 Medical Plaza, B500

Lectures: Tue/Thu 10:00 AM – 11:50 AM

**Instructors:** Holden Wu, PhD ([holdenwu@mednet.ucla.edu](mailto:holdenwu@mednet.ucla.edu))  
Kyung Sung, PhD ([ksung@mednet.ucla.edu](mailto:ksung@mednet.ucla.edu))

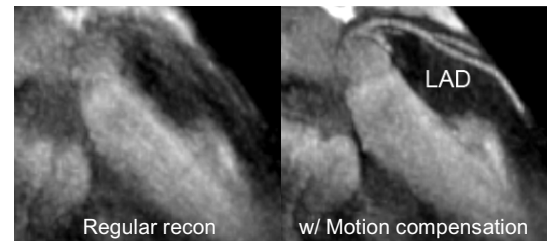
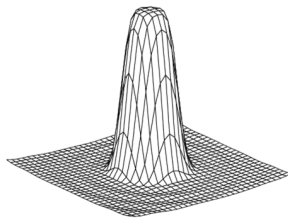
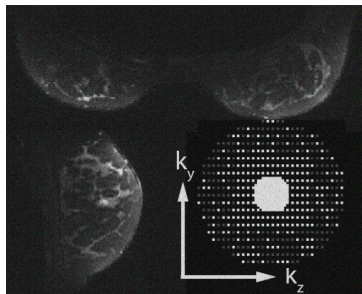
**Course Description:** This course will explore recent MRI developments that 1) have had high impact on the field, 2) involve novel pulse sequence design or image reconstruction, and/or 3) enable imaging of anatomy or function in a way that surpasses what is currently possible with any other modality. Simulations and programming exercises in Matlab will provide hands-on experience for students. Students will propose and carry out a final project along current directions of advanced MRI research.

## Course Topics:

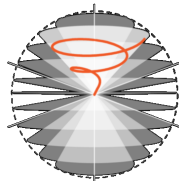
- Advanced Pulse Sequences
- RF Pulse Design
- Fast Imaging Techniques (non-Cartesian sampling, etc.)
- Water-Fat Imaging
- Advanced Image Reconstruction (parallel imaging, compressed sensing, etc.)
- Understanding / avoiding artifacts

**Prerequisites:** This course is a follow-up to M219 (Principles and Applications of MRI) and is meant for students interested in pursuing research related to the development or translation of new MRI techniques.

**Please email instructors if interested in this course.**



2D Spiral



3D Cones

