

Specialty area: **Cardio-Pulmonary MR-PET**

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### **Highlights**

Cardiac MRI provides information on myocardial function and structure and allows for useful characterization of various myocardial diseases.

Cardiac PET can be used to assess myocardial perfusion during rest and stress conditions. In addition, cardiac PET can be used to visualize myocardial inflammation and to distinguish scar from hibernating myocardium.

The integration of cardiac PET and MRI has several potential future clinical applications:

- Improved throughput among select patients who require both PET and MRI (e.g. evaluation of cardiac sarcoidosis, evaluation of cardiac masses)
- Improved attenuation correction using motion correction
- Improved assessment of myocardial viability (i.e. differentiating scar from hibernating and ischemic myocardium)
- Improved quantitative techniques for coronary flow reserve.

**Target audience:** Imagers and clinicians who are interested in combining cardiac MRI and PET imaging ; Physicists and other scientists interested in developing applications of cardiac PET/MR.

### **Objectives:**

(1) Understand clinical uses, strengths and limitation of cardiac PET and MRI

(2) Learn potential advantages of performing hybrid cardiac PET and MRI

### **SUMMARY:**

While cardiac PET and MRI both offer advanced cardiac imaging capabilities, the recent introduction of hybrid PET and MR systems allow for simultaneous data acquisition. This talk will provide an overview of current cardiac PET and MRI uses. While there is limited data on use of hybrid PET MR systems in cardiac imaging, this talk will discuss various potential upcoming clinical and research applications of this technique.