



# SANTA CLARA UNIVERSITY

Department of Mechanical Engineering

## Mechanical Engineering Seminar Series

### Thermal Science for Space featuring the Near Infrared Camera (NIRCam)

Liz Osborne  
Senior Research Science Manager  
Thermal & Energy Sciences Department  
Advanced Technology Center  
Lockheed Martin Space Systems Company

**Date:** Wednesday, January 18, 2017

**Time:** 4:00 – 5:00 pm

**Location:** Bannan Engineering, EC 326

#### Abstract

Lockheed Martin Space Systems Company's (SSC) Advanced Technology Center (ATC) develops and transitions technology discriminators for SSC lines of business in civil and military space, strategic missile defense systems, special programs, and commercial space. This talk will present the technologies of the ATC's Thermal & Energy Science Department, and then focus on the thermal design of a recent ATC built instrument – NIRCam – the heart of the James Webb Space Telescope.

#### Biography

Ms. Osborne is the Senior Research Science Manager at the Advanced Technology Center (ATC) at Lockheed Martin Space Systems Company (SSC). The ATC develops and transitions technology discriminators for SSC lines of business in civil and military space, strategic missile defense systems, special programs, and commercial space.

Ms. Osborne leads a team of 30 research engineers and scientists in Palo Alto and Denver, specializing in spacecraft thermal sciences, cryogenic & cryocooler technology, space environment radiation & testing, energy systems, and planetary & lunar in-situ resource utilization.

Prior to her current position, Ms. Osborne was the lead thermal engineer for the Near Infrared Camera (NIRCam), a cryogenic camera and the primary instrument for the James Webb Space Telescope. Ms. Osborne was responsible for managing the thermal heatloads for mechanisms, calibration sources, focal planes, and instrument electronics to ensure optical performance criteria could be met at 40 kelvins. Ms. Osborne still maintains a presence with the NIRCam program, actively supporting thermal activities during environmental testing at NASA Goddard Space Flight Center, and will continue with the program until launch in 2018.

Ms. Osborne holds a B.S. in Chemical Engineering from Worcester Polytechnic Institute, Worcester, MA.