Aerosol Research in NASA's Life Support Systems Program

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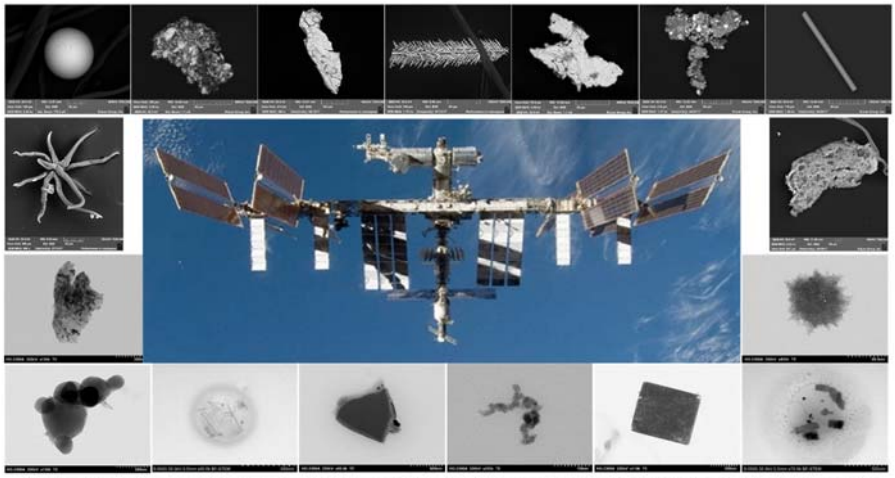
The International Space Station (ISS) gives a 6-member astronaut crew the ability to live and work in low Earth orbit. It is a unique indoor environment, which has served as both home and workplace to over 230 people in 55 increments since the year 2000. In this low gravity environment, smoke does not rise and cookie crumbs do not settle the way they do on Earth, causing aerosols to behave differently and pose unique hazards for crew members. In its existence, virtually the same volume of ISS air has been continuously conditioned and 'revitalized,' including the removal of particles by filtration. While gaseous constituents of ISS air are monitored meticulously, sparse data exists on indoor aerosols. There are two emphases for aerosol research in NASA's Life Support Systems Program: Indoor air quality and fire safety in the spacecraft cabin. The quantity and types of ISS airborne debris have been investigated in the recent Aerosol Sampling Experiment. Both active and passive samplers successfully collected aerosols in U.S. segments of the ISS and analysis of the findings is ongoing. Spacecraft fire safety research encompasses ground-based testing and characterization of small spacecraft material samples in GASP laboratory (Gases and Aerosols from Smoldering Polymers) and the six-part Saffire large-scale fire experiment in low gravity (2016 to 2020), which burns various materials in a disposable cargo vehicle at the end of its mission. An overview of the ongoing research from both areas of aerosol work will be presented.

https://www.nasa.gov/saffire



Airborne ISS particles returned from the Aerosol Sampling Experiment

https://www.nasa.gov/mission_pages/station/research/experiments/2300.html

Bio:

Dr. Marit Meyer has been a Research Aerospace Engineer at NASA Glenn Research Center in Cleveland, Ohio since 2010. Her work at NASA is two-fold: Fire safety and indoor air quality in spacecraft. Her fire characterization research involves heating common spacecraft materials and characterizing the smoke particles. On the indoor air/environmental side, she is principal investigator and project scientist for the Aerosol Sampling and DUST flight experiments. Marit completed her doctorate degree at Washington University in St. Louis. Prior to her PhD studies, she worked in the defense industry for 8 years as a thermal analyst specializing in humidity analysis. She earned her B.S. and M.S. in Mechanical Engineering from the University of Arizona.

Logistics:

This seminar will be held on **May 2, 2018 12:00-13:00** at DRI's Reno Campus Stout-A Conference Room (see map below) with video to DRI Las Vegas room Rogers 352. Lunch will be served. **Please RSVP to Vicki Hall (Vicki.Hall@dri.edu) if attending in Reno or Suzanne Hudson (Suzanne.Hudson@dri.edu) if attending in Las Vegas.**

You can also join the seminar remotely via WebEx or phone:
https://dri.webex.com/dri/j.php?MTID=mcda8bb67194609738010 55f066db1f46
Meeting number (access code): 808 604 334

Join by Phone: 1-650-429-3300 Call-in toll number (US/Canada)

Please be sure to mute the microphone or phone during the presentation.

If you want to have individual meeting with Dr. Meyer to discuss common interests or explore collaborations, please contact Dr. Xiaoliang Wang (Xiaoliang.Wang@dri.edu) for scheduling.