

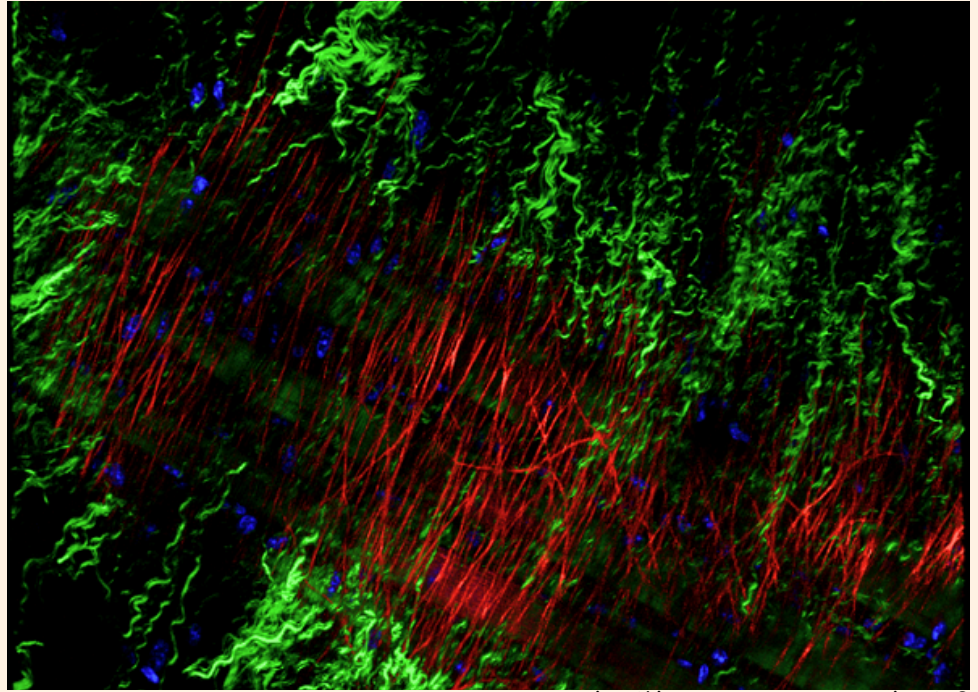
# THE IRF INSIDER

University of South Carolina School of Medicine  
Instrumentation Resource Facility  
RRID:SCR\_024955



## In Case You Missed It

- The IRF hired Dr. Ahmed Mohammed to serve as the in-house expert in electron microscopy and flow cytometry. If you have any questions in either of these areas, reach out to Ahmed!
- The Leica SP8 Multiphoton confocal microscope, previously housed in the VA Building 9, has now been relocated to Building 1 down the hall from the IRF B60 lab. This will allow much easier access and usability for our current and future users. Have questions? Reach out to Anna Harper!
- The IRF hosted a Lunch & Learn focused on the new BD FACSDiscover S8 cell sorter with CellView Imaging and SpectralFX technologies. Afterward, BD provided a second, more technical lecture, about Panel Design and Optimization. What a great success!
- The new Zeiss Lightsheet 7 has been installed in the IRF B59. With the extensive training needed to operate the microscope, we will not be fully opening it up for business quite yet. However, if you have any interest in providing samples to train on and potentially get free data, please contact Anna Harper!



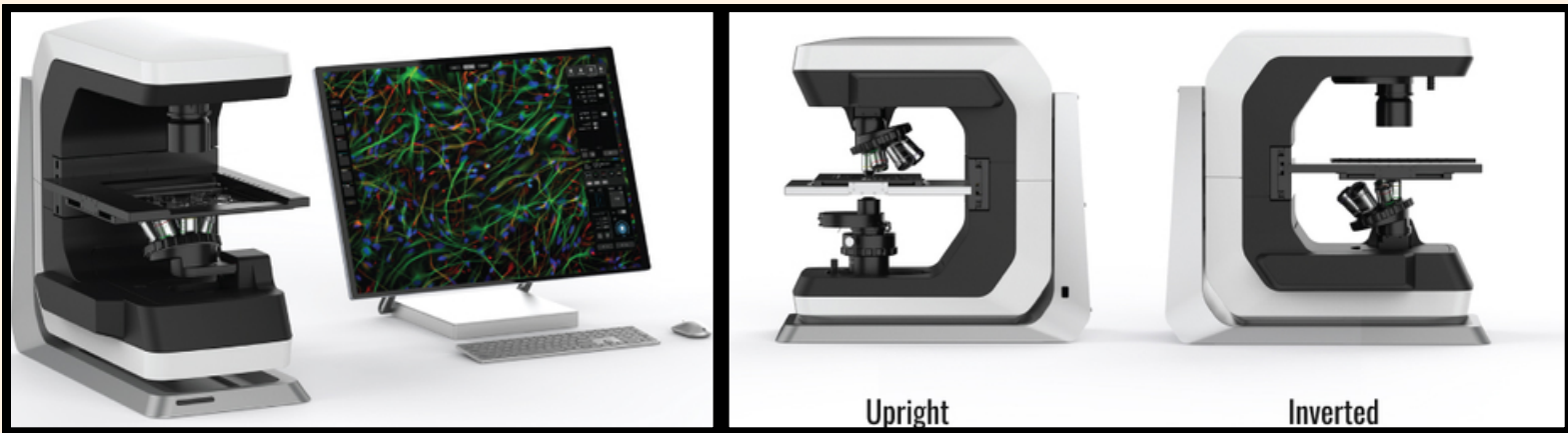
"Murine Skin" - Anna Harper - Leica SP8

## Be the First to Know!

Welcome to the quarterly published, *IRF Insider*, brought to you by the USC Instrumentation Resource Facility. In this newsletter, we recap what you missed, give updates on upcoming events, highlight our state-of-the-art equipment, and give you bits of knowledge. We hope you enjoy!

- In July, the IRF unveiled a new travel grant (sponsored by the Dr. Robert L. Price Instrumentation Resource Facility Endowment Fund) to help support our student users as they present their data generated in the IRF at a regional or national conference. We are excited to announce the awarding of our first ever travel grant to Marla Frick (PIs: Fadel/Reagan), who will be presenting at the Society of Neuroscience (SfN) Annual Meeting in October!
- On Tuesday, October 22nd (B1 classroom, noon), the IRF will be hosting its 2nd Lunch & Learn of the semester focused on our brand-new, state-of-the-art Zeiss Lightsheet 7 microscope! This seminar will introduce you to the wonderful world of lightsheet microscopy with Zeiss specialists to answer all of your questions about how to get your samples on the system.
- On Tuesday, November 19th (B1 classroom, noon), the IRF will be hosting its 3rd and final Lunch & Learn of the semester, focused on the ThermoFisher QuantStudio Absolute Q and how it can be utilized with our new QuantStudio 3 rtPCR as a data pipeline!

# Have You Used This Yet?



## Discover Echo Revolution IRF Location: B59

- The Discover Echo Revolution is the world's first and only hybrid, 4-in-1 microscope.
- This hybrid digital microscope combines upright and inverted imaging capabilities in a single, compact system.
  - Designed to streamline workflows and offer high-quality imaging for a wide range of applications.
- Known for its intuitive design, the Revolution features a large touchscreen interface and offers flexibility with both fluorescence and brightfield imaging.
- Hybrid options include:
  - The upright microscope- ideal for glass slides
  - The inverted microscope- ideal for live cell imaging
  - Transmitted light- brightfield, darkfield, and phase contrast
  - Fluorescence- automated LED illumination and one touch image overlay
- The high-resolution camera captures clear, detailed images, whether in brightfield or fluorescence modes, with a range of different objectives and live cell capabilities!

## Read This Today!



As technology advances, the field of microscopy offers unique opportunities for scientific exploration. However, the complex terminology used to describe these cutting-edge techniques often appears as a jumble of letters, akin to alphabet soup. Among the plethora of acronyms, some of the most prevalent are associated with super-resolution microscopy, including Stimulated Emission Depletion Microscopy (STED), Structured Illumination Microscopy (SIM), Spatially Modulated Illumination (SMI), and Single-Molecule Localization Microscopy (SMLM).

These techniques push past the limitations of conventional light microscopy, achieving resolutions down to the tens of nanometers. This article aims to decode these common super-resolution techniques, fostering a deeper understanding of microscopy and igniting interest in their application.

**Austin N Worden, *The Alphabet Soup of Microscopy: An Introduction to Advanced Imaging Techniques. Part I: Super-Resolution's STED, SIM, SMI, and SMLM, *Microscopy Today*, Volume 32, Issue 4, July 2024, Pages 42–47, <https://doi.org/10.1093/mictod/qaae048>***

## Quote Corner

By the help of microscopes, there is nothing so small, as to escape our inquiry; hence there is a new visible world discovered to the understanding.

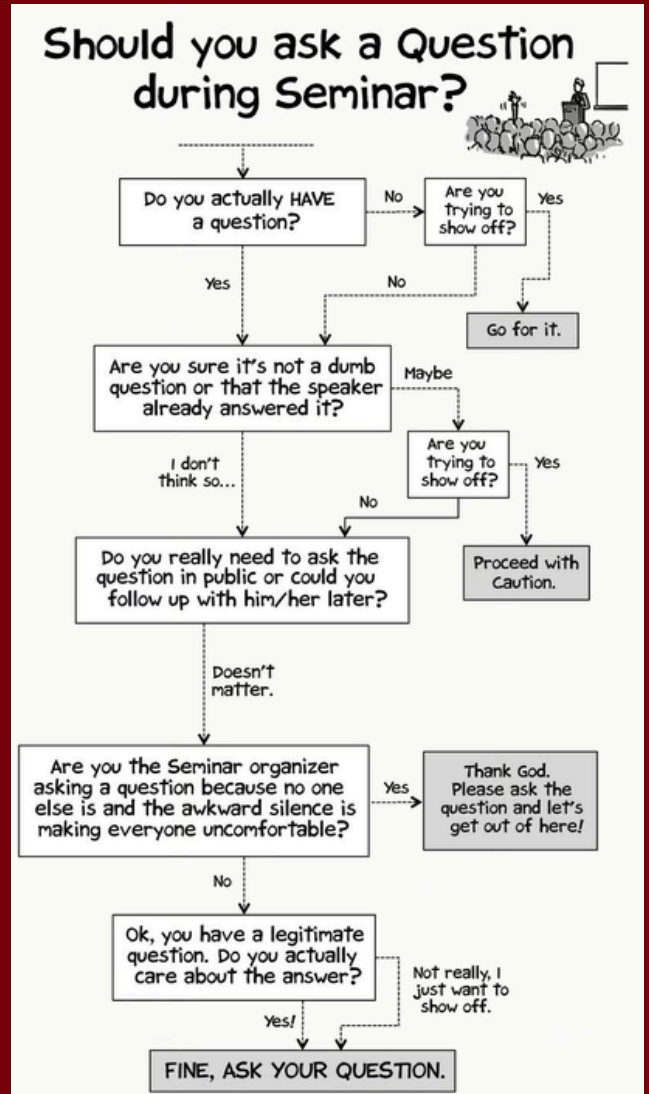
-Robert Hooke (1667) "Micrographia"-



Hooke's Microscope



Hooke's Drawing of a flea



www.phdcomics.com  
Jorge Cham copyright 2018

# Microscopy History

**1665:** Robert Hooke publishes his famous *Micrographia*, outlining his various studies using the microscope. Robert Hooke (1635–1703) was not only a scientist, he was a mapmaking pioneer, architect, astronomer, biologist, ingenious experimenter, and a founding member and 'curator of experiments' at the Royal Society in Britain. *Micrographia* was the first important work on microscopy, the study of minute objects through a microscope. It contained large-scale, finely detailed illustrations of some of the specimens Hooke viewed under the microscopes he designed. By changing our perspective, Hooke gave power and beauty to things that might otherwise be dismissed as disgusting or trivial – the surface of frozen urine, the eye of a grey drone-fly, a piece of moss, the body of a louse, an ant or a flea. Alongside the engravings, he wrote entertaining accounts of his observations. *Micrographia*'s illustrations of the miniature world captured the public's imagination in a radically new way; Samuel Pepys- a 17th century English diarist and naval administrator- called it "the most ingenious book that ever I read in my life."

# In Other News

- IRF Multi-year Plan
  - The IRF will be developing a multi-year plan to account for some foreseen changes and steps needed as we inch closer to the new Health Science Center building and the opening of the satellite IRF facility within it. In an effort of transparency, we will be releasing that plan to our user-base so that no one is surprised when changes occur!
- If you have new lab members or colleagues who are not signed up to receive emails from the IRF ListServ, have them join by scanning the QR code below that says "IRF ListServ"! It's as easy as putting their name and email address in a Google Form.
- It is vastly important that the IRF is acknowledged in publications and grants as we fight for more funding. Please use the QR code below labeled "Acknowledgement Guide" and follow the instructions to use our prefabricated statements.
- If you would like to donate to the Dr. Robert L. Price Instrumentation Resource Facility Endowment Fund to support students like Marla through the IRF Travel Grant, [donate here!](#)
- Join the VPR's ListServ to stay up-to-date on information regarding all centralize core facilities. Email Savannah Britz (hulon@mailbox.sc.edu) to be added!

## Want more information? Scan or Click the QR Code!



**IRF Website**



**IRF ListServ**



**Acknowledgement Guide**



**IRF Resources**

