

Workshop on Advanced Confocal Microscopy for Super Resolution Imaging



Date: 7th -10th October, 2026

Venue: Aravind Medical Research Foundation, Madurai

Aravind Medical Research Foundation (AMRF) is the research arm of the Aravind Eye Care System, dedicated to advancing vision science and healthcare. AMRF encompasses the departments of molecular genetics, microbiology, immunology, stem cell biology, proteomics, bioinformatics, and ocular pharmacology. AMRF bridges basic, translational, and clinical research to develop innovative approaches for the diagnosis, prevention, and treatment of eye diseases.

Confocal imaging enables high-resolution visualization and quantitative analysis of cellular and molecular changes. By eliminating out-of-focus fluorescence, it provides sharp optical sections and detailed 3D images. The Leica Stellaris WLL STED confocal microscope at AMRF offers advanced capabilities including live-cell imaging, fluorescence lifetime imaging (FLIM), LIGHTNING super-resolution, and Stimulated Emission Depletion (STED) microscopy enabling nanometer-scale visualization of subcellular structures such as exosomes beyond the conventional diffraction limit. At AMRF, the confocal microscopy is currently used for (i) Identification, quantification and characterization of adult ocular stem cells; (ii) Assessment of the therapeutic efficacy of drugs using *in vitro* and *ex vivo* models; and (iii) High-resolution visualization and intracellular tracking of exosomes/small extracellular vesicles.

About the Workshop

This workshop aims to provide comprehensive training in confocal microscopy techniques with a focus on modern applications in cell biology. The program combines lectures by experts and hands-on sessions to train participants with both theoretical knowledge and practical skills. Participants will gain exposure to sample preparation, imaging strategies, advanced applications such as FLIM, super-resolution imaging, and data analysis.

The lectures and hands-on training will be on:

- Fundamentals of confocal microscopy and instrumentation
- Sample preparation techniques (cytospin, paraffin section, cryosection)
- Hematoxylin staining and Immunostaining
- Image acquisition strategies and optimization
- Multichannel imaging, Z- sectioning and 3D reconstruction
- Quantitative image analysis
- Time-lapse imaging and super-resolution microscopy
- Fluorescence Lifetime Imaging

Participants

Research Scholars and Post-Doctoral Fellows

How to apply

- Link for submitting the application:
<https://forms.gle/hg3MkbkUjXi45Jvx7>
- Last date for receipt of filled in Application form – 15.09.2026
- Shortlisted applicants will be informed by mail on or before – 20.09.2026

Registration Information

- Selected applicants alone have to pay the registration fees (payment details will be shared later).
- **Registration Fee: Rs.2000/ +18% GST.**
- The registration fee includes workshop material and food (Lunch and tea/coffee only) for the duration of the workshop.

Note: Accommodation, travel, food and other personal expenses have to be borne directly by the participants.

For further details contact:

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ARAVIND EYE CARE SYSTEM