

## Steady state fluorescence and principal component supported lifetime images for cervical precancer detection

**Asima Pradhan**

Indian Institute of Technology Kanpur, India

Cervical cancer is one of the deadliest diseases of the present times. Currently, available detection techniques are limited by either low sensitivity or low specificity. Steady-state fluorescence spectroscopic techniques have been extensively used for diagnosis of cancer. The limitations of fluorescence spectroscopy from biological tissue is the highly overlapping spectral characteristics of contributing fluorophores, making it difficult to monitor disease development. On the other hand, fluorescence lifetime imaging, which is independent of fluorophore concentration and illumination intensity but depends on environment of the fluorophore. Fluorescence lifetime images of cervical tissue samples have shown interesting results on application of Principal Component Analysis (PCA) to lifetime profiles. Classification by using a Support Vector Machine (SVM) algorithm on PC scores are seen to improve the diagnostic efficacy.

**Biography:** Asima Pradhan currently working as professor in the Department of Physics at the Indian Institute of Technology (IIT), Kanpur, India, and is also associated with the Center for Lasers and Photonics. She received her PhD from City University of New York, New York, US. Her areas of interest include laser spectroscopy and bio photonics. Her expertise is in fluorescence spectroscopy, light scattering spectroscopy, time-resolved fluorescence, polarization-based fluorescence, Mueller matrix imaging and FLIM.

asima@iitk.ac.in