

# Polarization microscopy with Orthogonally Polarized

## Illumination

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This paper proposes a form of birefringence microscopy where a biological sample is illuminated by two mutually orthogonally polarized and collinearly propagating beams to measure the pixelwise retardance and orientation of fast axis. The proposed simple and full-field technique may find use in evaluation of spatially varying retardation of biological samples for diagnosis of diseased cell and tissue structure.

Short biography:



<sup>1</sup>Indrani Bhattacharya received PhD from Department of Applied Optics and Photonics, University of Calcutta, Kolkata, India in May 2019. She has done her postdoctoral research in the Department of Physics and Mathematics, University of Eastern Finland, Joensuu, Finland under Finnish Flagship Program Photonics Research, and Innovation – PREIN in 2019-2020. She worked as a research engineer in a leading telecommunication company in India from 1990-2010. At present, she is a Professor and Director in Seacom Skills University, Innovation and Incubation Center (IIC). She is an optical system designer in the field of Diffractive Optics and Point Spread Function Engineering. Recently, she is focusing her research in diffractive and polarization optical devices applicable for biological live imaging. She is serving as a Steering Committee member of ISOT since 2016 and as a Program committee member of SPIE Light in Nature Conference OP302 since 2019. She is a regular member of SPIE and a Life Member of Optical Society of India (OSI). She has served as a member of SPIE Scholarship Committee member for 2019-2021 and as a Board Member of Finland Diversity in Physics (FIN DiP), 2020-2022. She was honoured and enlisted by SPIE in Women in Optics Planner in 2016–2017 for her long-term contribution in Optics and Photonics. She is the Convener and Organizer of several International Conferences in Optics and Photonics and Editor of Springer Proceedings in Physics of Volumes 166, 194, 233, 249 and has published several research articles.



<sup>2</sup>Kallol Bhattacharya received his B.Sc. with Physics Hons.(1985), M.Sc.(Tech.) in Optics and Optoelectronics (1988) and doctoral degree (1995) from Calcutta University. He served as Lecturer (1992-1994) in the Department of Instrumentation, Jadavpur University and Scientist at Saha Institute of Nuclear Physics (1994-2001). He joined the Optics and Optoelectronics Section in the Department of Applied Physics as Reader in 2001 and is presently working as Professor in the Department of Applied Optics and Photonics, University of Calcutta. Currently his research interest is in the domain of optical metrology utilizing

polarization. He has about seventy publications in national and international journals and takes an active interest in teaching. He is also an avid cyclist and is an active member of the ‘cycle-to-work’ movement.