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Holographic Modal Wavefront Sensing with Novel Quality Metric Parameter

7 April 2026 (Tuesday)

3:30 PM @ C – 109 (D1 Block, IIST)

Speaker – Anitta Jomy (SC24D030)
Research Scholar, Department of Physics IIST

Abstract: Holographic modal wavefront sensing (HMWS) works on the basis of relative on-axis intensity difference measurement obtained by deliberately adding positive and negative amount (bias, b) of a particular mode of the orthonormal polynomial basis used for wavefront representation. Performance of HMWS require optimum values of bias, diameter of aperture placed in front of detector and position of the focal spot on the detector. In this work, we propose a novel quality metric parameter (QMP) defined using a spatial intensity distribution matrix for an improved HMWS that can overcome these limitations associated with the conventional HMWS. Proof-of-concept simulation and experimental results are included in support of our research findings.

