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Type: Oral Presentation

Blurring the classical-quantum divide

Thursday, 4 October 2018 10:00 (1 hour)

Interference, the quintessential property of wave optics, is a venerable topic that spans centuries of study, influencing how we understand both the classical and quantum worlds. Infact, little has changed since the seminal work of Young with his double slit experiment, performed even to this day in much the same way as he did it. In this talk we will revisit the central paradigms in classical and quantum interference and show how they can be bent, in some cases broken, and how this influences the way we teach such topics. We will outline through simple demonstrations that interference may be observed in places one may not think to look, that quantum entanglement may be demonstrated with purely classical light, and that much of quantum mechanics can be taught in a practical manner without the need for complicated single photon experiments. In the process we will provide a complete resource for DIY experiments that incorporates modern digital tools with 3D printed components to bring the concepts alive in the laboratory.

Apply to be considered for a student award (Yes / No)?

No

Level for award (Hons, MSc, PhD, N/A)?

N/A

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Track Classification: Track L - Other (Please elaborate under comments below)