

CONDENSED MATTER COLLOQUIUM SERIES

#Ankara

Mustafa Gündoğan

Humboldt Universität zu Berlin

New frontiers with old friends: towards quantum memories in space

Stopping light -the fastest thing in the universe- sounds like science fiction. Yet, nearly 25 years have passed since its first laboratory demonstration. Soon after, it became clear that optical quantum memories could enable numerous applications, particularly in quantum information science and communications. In this talk, I will discuss the history of slow and stopped light experiments and how the same physical systems now allow new frontiers to be explored -from gravitationally induced entanglement dynamics to using microgravity as a resource to enhance the performance of such memory devices. I will also present our experiments in which we have demonstrated the first implementation of these experiments outside a controlled laboratory setting.

Mustafa Gündoğan studied physics in Bilkent and Koç Universities, followed by a PhD at ICFO in Barcelona, which he completed in 2015. His doctoral research focused on the development of solid-state quantum memories for photonic qubits. From 2016 to 2019, he was a postdoctoral researcher at the University of Cambridge, working on quantum optics with single spins in diamond. Since then, he has been based at Humboldt University of Berlin, where he is working on a variety of topics, from satellite-based quantum communication architectures to quantum sensing with optical memories -initially as a Marie Curie Fellow, and later as a team lead within the Integrated Quantum Sensors Group. He has recently been awarded an Einstein Starting Researcher Grant.

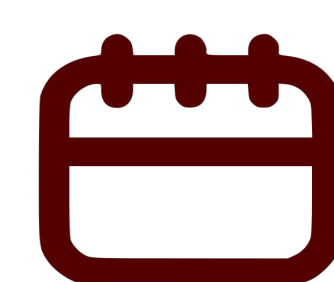
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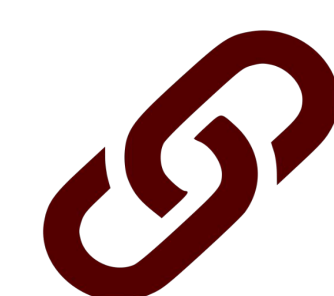


March 4, 2025

Tuesday



19:00, (Ankara Time)



Click [here](#) for zoom link

Meeting ID: 432 931 6595

Password: 326852