

# The Sagnac Effect for quantum sensing

*Thursday, 19 September 2024 09:30 (1 hour)*

In this lecture, we explore the Sagnac effect, a fundamental phenomenon in physics arising from rotational motion, and its implications for quantum sensing technologies. The Sagnac effect, observed when a beam of light is split and sent in opposite directions around a rotating loop, results in a measurable phase shift proportional to the angular velocity. This principle has been pivotal in the development of highly sensitive gyroscopes and navigation systems. We will delve into the theory of the Sagnac effect, review its classical applications, and transition to its utilization in quantum sensing. Emphasizing recent advancements, we will examine how the integration of quantum mechanics changes the precision and sensitivity of measurement devices, though enabling breakthroughs in the field of fundamental physics.

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