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December Science News Recap

ICFO's summary of news highlights of the scientific discoveries and stories from the month of December 2025.

January 09, 2026

December was packed with different scientific discoveries, results and findings that have sparked different stories to share. We've gathered the most important updates to keep you in the know. Whether you missed a few of them or just want a quick recap, our summary of December's top scientific news has you covered. Dive in and catch up on everything that happened this month.

News 1

Women for quantum-manifesto of values

Women for Quantum, a group of female tenured quantum physics professors, have published in Communications Physics a Manifesto of values and goals they identify with. The Manifesto acknowledges the unsatisfactory current situation of women in quantum physics and aims to initiate a dialogue to reverse it and trigger new paths of doing research.

Date: December 15, 2025

Topic: Quantum physics

ICFO Researchers: ICREA Prof. Leticia Tarruell, and Prof. Veronica Ahufinger.

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News 2:

Breaking barriers in attoscience with the shortest light pulse ever created

In just a few attoseconds, electron interactions already take place. These interactions determine how chemical reactions unfold, how materials conduct electricity, how biological molecules transfer energy, and how quantum technologies operate. But these timescales are far too fast for conventional measurement tools to grasp.

ICFO researchers have set a new record with the shortest soft X-ray pulse to date, just 19.2 attoseconds long. The pulse effectively creates a camera capable of capturing the elusive electron dynamics in real time with unprecedented detail. This milestone has been published in Ultrafast Science.

Date: December 17, 2025

Topic: Ultrafast Science

ICFO Researchers: Dr. Fernando Ardana-Lamas, Dr. Seth L. Cousin, Juliette Lignieres, and

ICREA Prof. Jens Biegert.
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News 3:

New advances in quantum structured light pave the way for safer communications and ultra-fast computing

Researchers from the Universitat Autonoma de Barcelona (UAB) and the University of the Witwatersrand, South Africa, working within the Catalonia Quantum Academy framework, present in Nature Photonics a comprehensive collection of the latest advances in quantum structured light, an emerging field that allows increasing the amount of information that light can transport. This technology has potential applications in more secure communications, faster quantum computing, and high-sensitivity detection systems.

Date: December 19, 2025

Topic: Quantum Optics

ICFO researchers: Dr. Adam Valles.

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