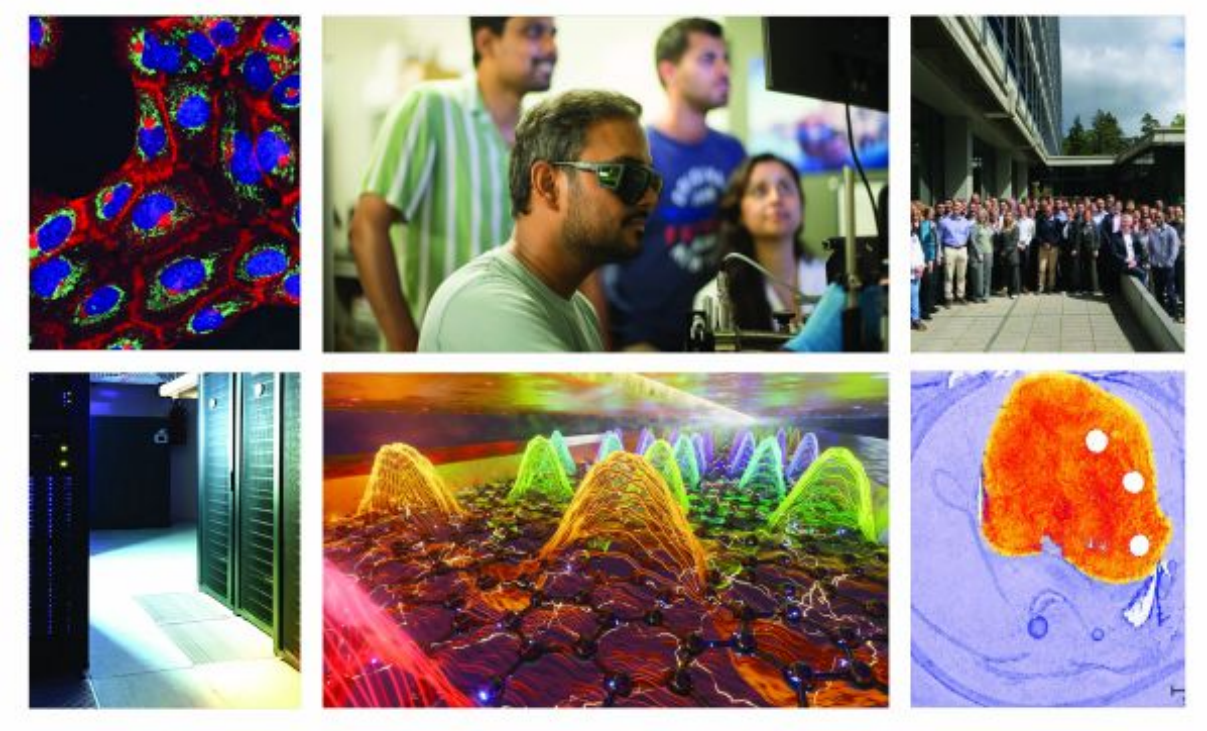

June Science News Recap

ICFO's summary of news highlights of the scientific discoveries and stories from the month of June 2026

July 03, 2026

June 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 June's top scientific news has you covered. Dive in and catch up on everything that happened this month.

News 1

The challenges of studying mechanical properties in cells

Shape, volume, pressure, tension, stiffness, force, viscoelasticity, adhesion, flow... All thes mechanical properties directly affect our tissues, cells, and cellular components. At t e moment, mechanobiology - the field that studies how biological components sens , interpret, and convert mechanical features into biochemical signals - is facing sever l challenges. Now, in aNature Nanotechnology perspective article, an international team of

researchers highlights the major ones. Addressing these hurdles could improve the analysis, monitoring and prediction of mechanobiological processes, ultimately leading to improvements in biotechnological and medical applications.
Date: June 11, 2026
Topic: Mechanobiology.
ICFO Researchers: ICFO Prof. Michael Krieg.
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News 2:
Researchers refine Raman spectroscopy to characterize melanin more reliably
Melanin, the pigment that gives color to our skin, hair and eyes, is also believed to play a role in melanoma disease -the most dangerous form of skin cancer. Being able to correctly identify and quantify the two main forms of melanin could advance melanoma research, but we must do so using a non-destructive approach, such as Raman spectroscopy.?
ICFO researchers have now developed a strategy that overcomes the challenges associate with Raman spectroscopy when characterizing the two main forms of melanin. Th methodology, published inMicrochemical Journal, reduces signal distortions and facilitates comparisons between differently pigmentated samples and across varying experimental conditions. These results could guide future research on melanoma disease.
Date: June 15, 2026
Topic: Biophysics.
ICFO Researchers: Jose Javier Ruiz and Dr. Pablo Loza-Alvarez.
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News 3:
Launch of the European Quantum Pilot i¿½P4Qi¿½ to Scale Photonic Chips for Real-W rld Applications
Funded with a total investment of ?50 million, the Photonics for Quantum (P4Q) Pilot Line is a European initiative designed to help quantum photonics technologies transition from research laboratories into reliable, scalable industrial production. P4Q focuses on developing the standards, design tools, and manufacturing techniques needed to produce quantum photonic chips that perform reliably in real-world environments.
Within P4Q, the research groups at ICFO led by ICREA Professors Valerio Pruneri and Leticia Tarruell, will help define system requirements and design PIC-based subsystems for neutral atom and ion-based quantum computing platforms, while contributing to the development of advanced photonic chips as thin-film lithium niobate (TFLN) on aluminum nitride or aluminum oxide for short-wavelength applications. The institute will also support the design of critical photonic components, lead testing and assembly activities, and contribute to real-world demonstrations.

Date: June 18, 2026
Topic: Photonic chips
ICFO researchers: ICREA Professors Valerio Pruneri and Leticia Tarruell.
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News 4:

Graphene plasmon cavities enable advanced and scalable terahertz photodetectors

Spanning frequencies between 0.3 and 20 THz, THz light interacts with matter without causing damage and allows for faster data transfer than radio waves. It is thus ideal for advancing many applications in biomedicine and telecommunications, for which simple yet sensitive and fast detectors are needed.

ICFO researchers have now developed a novel platform based on monolayer graphene that produces an efficient electrical response when exposed to terahertz light. Terahertz photodetection is enhanced by using a cavity with acoustic graphene plasmons, a set-up that overcomes a major manufacturing bottleneck while boosting device performance. These results, published in ACS Photonics, pave the way for practical, high-sensitivity THz photodetectors with potential applications in fields like biomedicine and telecommunications.

Date: June 22, 2026
Topic: Photodetectors
ICFO researchers: Dr. Domenico De Fazio, Dr. Sebastian Castilla, Dr. Karuppasamy P. Soundarapandian, Dr. Simone Marconi, Riccardo Bertini, Dr. Roshan K. Kumar, led by ICREA Prof. Frank Koppens.
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News 5:

Quantum Excellence Centre for Quantum-Enhanced Applications

A new European effort to accelerate the real-world adoption of quantum technologies has been undertaken with the launch of the new initiative Quantum Excellence Centre for Quantum-Enhanced Applications (QEC4QEA). Funded by the EuroHPC Joint Undertaking with an EU contribution of approximately ?4.9 million, the four-year project aims to transform cutting-edge quantum research into practical industrial solutions.

Within the project, ICREA Prof. at ICFO Antonio Acin and his research group will bring their expertise on the design of quantum algorithms for current and near-term quantum devices, as well as methods for the certification and benchmarking of quantum computers. ICFO will develop solutions to problems in quantum chemistry, optimization, and post-quantum cryptography, and lead efforts in quantum machine learning.

Date: June 25, 2026
Topic: Quantum technologies

ICFO researchers: ICREA Prof. at ICFO Antonio Acin.
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News 6:

Colloidal quantum dots: a scalable path to infrared detection

The ability to detect mid- and long-wave infrared (MWIR and LWIR) light at room temperature could unlock applications in non-invasive medical diagnosis, environmental monitoring, or the autonomous vehicle industry. Promising candidates for developing such detectors are the so-called bolometers, instruments that measure how much electromagnetic radiation is emitted by an object.

ICFO researchers have now developed a bolometer based on colloidal quantum dots (CQDs) to detect infrared light at room temperature. The novel bolometer achieves higher sensitivity than other state-of-the-art platforms and, at the same time, is low in cost, compatible with CMOS technology, and is free from the need to match crystal structures during fabrication. The technology, published in Advanced Materials, could dramatically lower production costs and unlock high-volume commercial markets.

Date: June 29, 2026

Topic: Quantum dots.

ICFO researchers: Dr. Gaurav Kumar, Dr. Mariona Dalmases, Dr. Nima Taghipour, Dr. Rajesh Bera, Dr. Guy L. Whitworth, Goretti Torres Perez, and Miguel Dosil, led by ICREA Prof. Gerasimos Konstantatos.

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