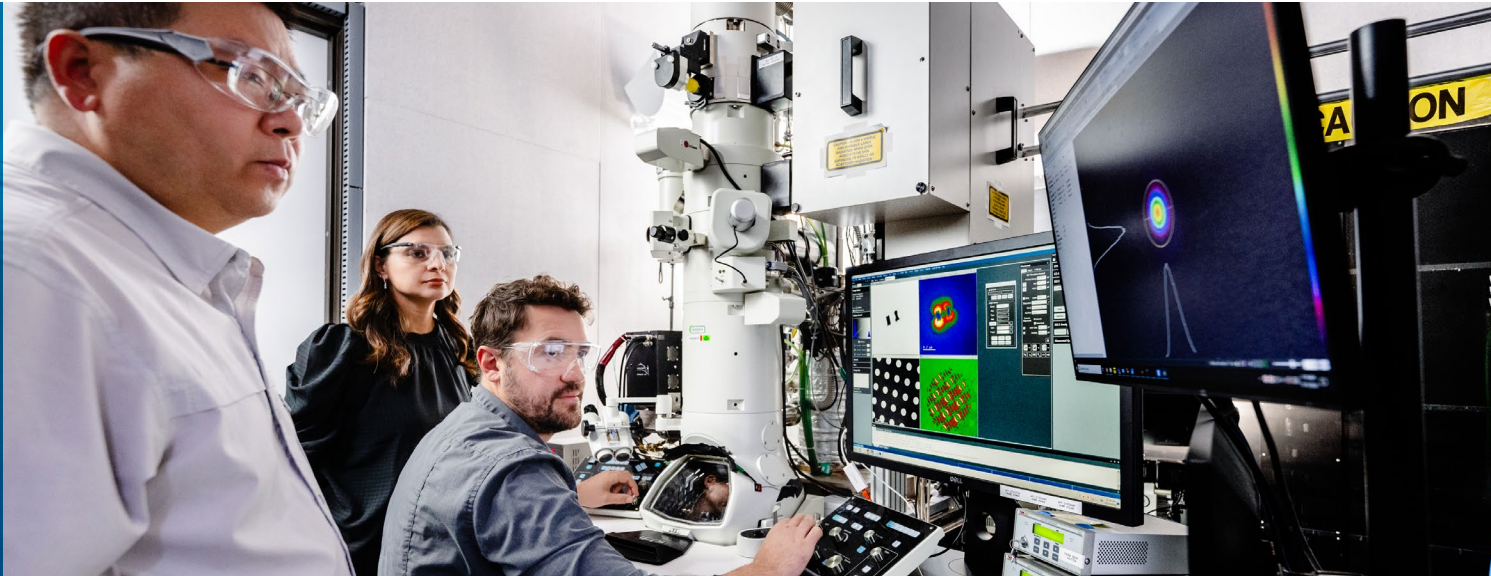


CENTER FOR NANOSCALE MATERIALS

Advancing America's future through nanotechnology



CNM's ultrafast electron microscope.

The Center for Nanoscale Materials (CNM) at Argonne National Laboratory, a U.S. Department of Energy (DOE) Office of Science user facility, is advancing nanoscience to address critical national scientific and technological needs. Collaborating with a vast scientific community, CNM drives discovery in areas such as quantum information science, artificial intelligence/machine learning, optoelectronics and microelectronics.

THE POWER OF NANOSCIENCE

At CNM, researchers embrace the principle that “everything starts at the nanoscale”—a billionth of a meter. At this scale, materials exhibit unique behaviors, distinct from their larger forms. By manipulating materials at the nanoscale, researchers can unlock unprecedented materials phenomena, enabling new applications in energy systems, microelectronics, quantum materials and more.

PIONEERING RESEARCH

CNM facilitates cutting-edge research across diverse fields, including:

- Developing novel materials for qubits—the fundamental units of quantum computing—and studying their interactions.
- Using AI-guided robotic systems to accelerate nanoscale materials discovery.
- Employing ultrafast lasers, electrons and X-rays to investigate atomic-scale material dynamics.
- Engineering interfaces between materials to achieve specific properties or functionalities.
- Accelerating the discovery of nanoscale platforms for energy security solutions.

WORLD-CLASS CAPABILITIES AND TOOLS

CNM provides access to over 150 capabilities and tools, including extensive cleanroom facilities with nanofabrication equipment, unique electron microscopes and high-performance computing resources.

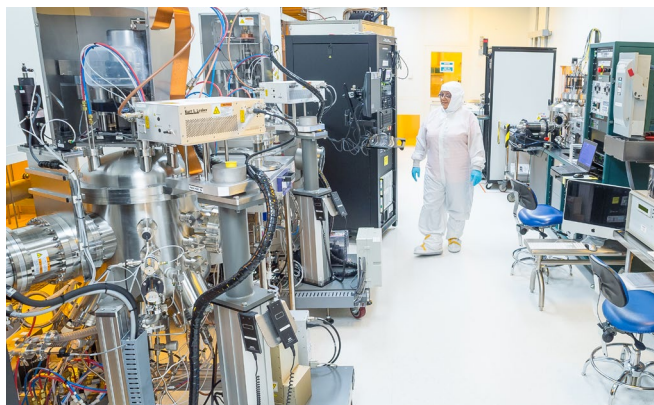
Among its unique capabilities is the Hard X-ray Nanoprobe, operated in partnership with Argonne's Advanced Photon Source. The Nanoprobe uses high-energy X-rays to probe atomic-scale details, providing insights that complement CNM's powerful electron microscopes. Together, these tools offer comprehensive insights into materials properties and behaviors.



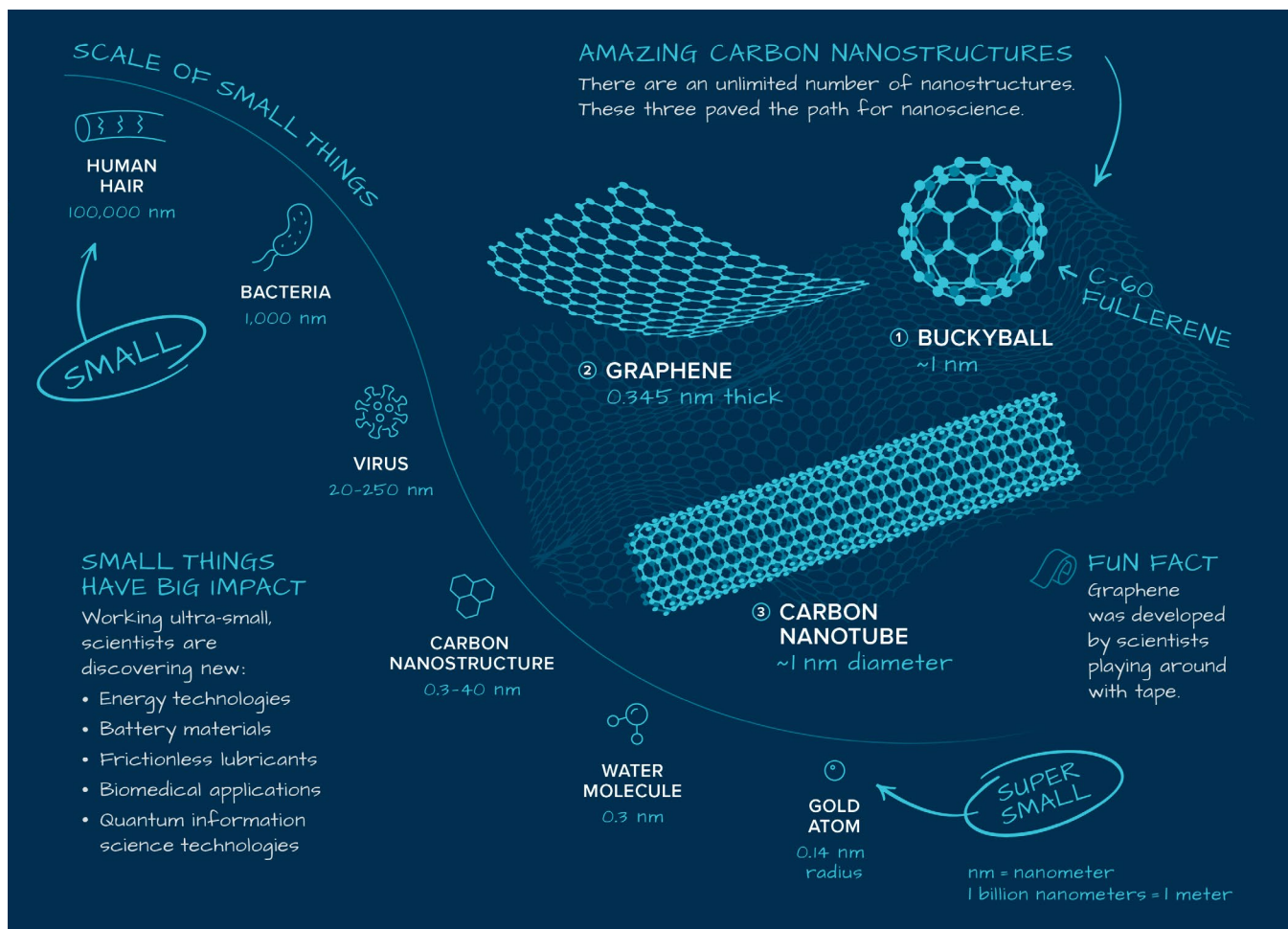
COLLABORATIVE SYNERGIES

Each year, roughly 850 users take advantage of CNM's cutting-edge instruments and expertise. This collaborative environment accelerates progress in both fundamental and applied research.

CNM's mission is enriched by close collaborations with Argonne's Advanced Photon Source and Leadership Computing Facility—DOE Office of Science user facilities that provide complementary capabilities in atomic-scale characterization and high-performance computing. These collaborations amplify CNM's impact on the broader scientific community.



CNM's cleanroom.



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