

Activities

[1] On June 29, 2026 - INTERNATIONAL SYMPOSIUM ON QUANTUM AI & THE FUTURE OF LIFE (ISQAI-FoL)

The International Symposium on Quantum AI and the Future of Life aims to create an interdisciplinary platform for thought leaders, practitioners, and researchers from diverse fields to explore the transformative potential of quantum computing and artificial intelligence (AI) in shaping the future of human well-being. This event will focus on cutting-edge applications of these groundbreaking technologies across four key domains: Biomedicine & Healthcare, Integrating Traditional Chinese Medicine and Western Medicine, Longevity and Anti-aging, and Life Optimization.

Click [here](#) for more information.



[2] On June 8, 2026, AIQRC—a group of eight members—visited Taiwan-based renowned pharmaceutical company to explore opportunities for academic–industry collaboration

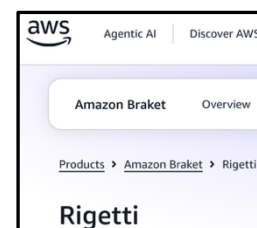
[3] On May 27, 2026, AIQRC published an article in the Economic Daily News. Click [here](#) for the original contents.

[4] On May 7, 2026, AIQRC published an article in the Economic Daily News; the English translation is included in the newsletter. Click [here](#) for the original contents.

[5] On April 22, 2026, AIQRC published an article in the Economic Daily News; the English translation is included in the newsletter. Click [here](#) for the original contents.

[6] On April 8, 2026 AIQRC received approval to use the AWS cloud-based Rigetti Computing quantum computing system.

Click [here](#) for more information



[7] **Feb. 2026** - We recently secured approval for five Ministry of Education–funded programs in Taiwan, creating valuable learning pathways for young people. These programs support international exchange and advanced training at globally recognized universities, helping students build interdisciplinary knowledge, research skills, and global perspectives in fields such as artificial intelligence, quantum computing, biomedical science, systems medicine, and robotics. Click [here](#) for more information.

I-9-10	④	IBM量子夢：紐約研習營	美國紐約	(九)科技網絡及數位服務	制霸IBM量子科技巔峰	115年7月13日至7月28日，共計16日（含飛行日）
I-9-11	④	醫工量子：UCLA 菁英計畫	美國加州洛杉磯	(九)科技網絡及數位服務	探索腦科學與量子計算	115年7月6日至9月3日，共計60日（含飛行日）
I-9-12	④	量子金融：赴美職涯領航	美國大紐約區	(九)科技網絡及數位服務	跨足量子與AI金融實務	115年7月6日至8月9日，共計35日（含飛行日）
I-9-13	④	AI與石黑浩：探索擬真界	日本大阪	(九)科技網絡及數位服務	台日共創人形機器人新未來	115年8月1日至116年1月15日，共計168日（含飛行日）
I-9-14	④	勇闖WVU：太空機器人實戰	美國摩根敦	(九)科技網絡及數位服務	太空採集機器人見習	115年7月6日至7月23日，共計18日（含飛行日）

[8] **From March 16 to 19**, Asia University’s AIQRC is actively advancing its forward-looking strategy. President Jeffrey J. P. Tsai, Honorary Chairman of AIQRC (third from the right in the photo) and Chair Professor, K.T. Huang, Director of AIQRC (fifth from the right in the photo), recently led a delegation to the United States to visit quantum technology firm Rigetti Computing, where they were hosted by Vice President Mike Piech (fourth from the right in the photo). The visit marks an important step in strengthening the university’s quantum AI strategy, fostering connections with world-class technologies, and building a solid foundation for its vision of becoming an “AI University.”

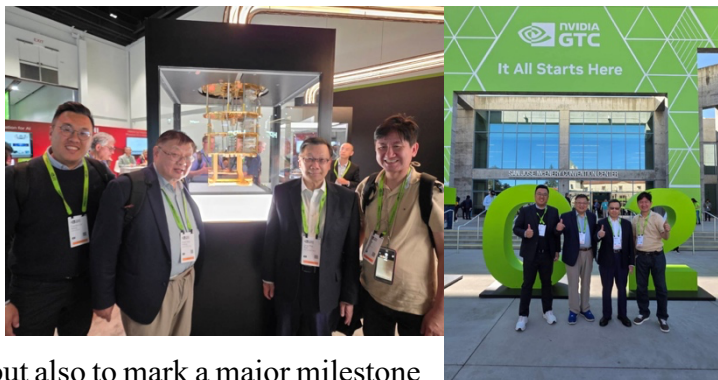


Click [here](#) for more information.

The Asia University delegation conducted an in-depth visit to Rigetti’s laboratories, inspecting hardware facilities and system architectures such as superconducting quantum computers (superconducting qubits), and gaining firsthand insight into the latest technological developments shaping the global quantum industry. President Jeffrey J. P. Tsai, Honorary Chairman of AIQRC (third from the left in the photo), Chair Professor, K.T. Huang, Director of AIQRC (second from the right in the photo) and Rigetti Computing Vice President Mike Piech (fourth from the left in the photo).



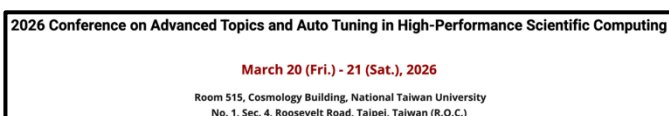
[9] From March 16 to 19, President Jeffrey J. P. Tsai, Honorary Chairman of AIQRC (second from the right in the photo), led teams in quantum AI, robotics, and intelligent healthcare to Silicon Valley to attend NVIDIA GTC 2026, the world's premier annual AI conference, and engage with the global AI and semiconductor ecosystem. Tsai emphasized that the visit aimed not



only to track cutting-edge technologies, but also to mark a major milestone in advancing Asia University's AI University vision and international collaboration strategy.

Click [here](#) for more information

[10] On March 20, 2026 Deputy Director of AIQRC, Ka-Lok NG, delivered a presentation titled “Exploring the Potential Advantages of Quantum Machine Learning in Biomedical Research” at the 2026 Conference on Advanced Topics and Auto Tuning in High-Performance Scientific Computing.9Click [here](#) for more information.



[11] Feb. 2026 - We successfully had a proposal accepted for the Fujitsu Quantum Simulator Challenge 2025–26 event.

Announcing the Fujitsu \$100,000 Quantum Simulator Challenge 2025-26

Click [here](#) for more information.

A New Milestone in Quantum Computing: Successful Simulation of a Protein–Ligand System with More Than 12,000 Atoms [1]

Introduction

A protein–ligand complex is a system formed when a protein binds to a small molecule (ligand). Such systems are fundamentally important in life sciences and drug discovery because many pharmaceutical compounds—including inhibitors and agonists—exert their effects by interacting with specific proteins and altering their activity, structure, or signaling pathways. Understanding how proteins and ligands bind, as well as the stability of these interactions, directly influences drug efficacy and the likelihood of side effects.

Among the key indicators used to evaluate drug quality are **binding affinity** and **selectivity**. Binding free energy and the precise geometry of the binding site affect the dosage required for therapeutic effectiveness; in general, stronger binding affinity allows lower drug doses. Selectivity determines whether a drug acts primarily on its intended target protein rather than interacting with other proteins, thereby reducing unwanted side effects.

From a biomedical perspective, the primary objective of studying protein–ligand complexes is to understand drug–target interactions at the most fundamental molecular level. Such knowledge is essential for rational drug design, toxicity prediction, and personalized medicine.

Quantum–Classical Hybrid Computing Advances Accurate Protein–Ligand Simulations

Quantum computing has reached an important milestone in the simulation of large chemical and biological systems. An international research team recently employed up to **94 qubits** alongside conventional high-performance computing resources to successfully simulate a protein–ligand system containing more than **12,635 atoms** [1]. This achievement suggests that quantum technologies are gradually progressing from laboratory demonstrations toward practical applications capable of addressing real-world scientific challenges.

The study combined quantum processors with traditional supercomputers through a **quantum–classical hybrid workflow**. In this framework, the quantum computer primarily served as a wavefunction distribution sampler, while classical supercomputers handled the computationally intensive subproblems.

Through this division of labor, the researchers were able to tackle molecular systems that had previously been difficult to study computationally, achieving new advances in both system size and computational accuracy.

The Key Role of the Quantum–Classical Hybrid Architecture

The central innovation of this work lies in its quantum–classical hybrid computing architecture. Within this framework, the Quantum Processing Unit (QPU) was used as a specialized sampling device for selected molecular fragments. Rather than performing most of the overall computation, the quantum processor provided high-precision sampling that helped identify important subspace basis states.

The most computationally demanding tasks—including subspace diagonalization, molecular fragment construction, and energy recombination—were still carried out by classical supercomputers using CPUs and GPUs.

Importantly, the researchers did **not** use a quantum computer to directly simulate the entire 12,635-atom protein system. Instead, the study employed two IBM Quantum Heron R2 processors, each containing 156 qubits, while utilizing up to 94 qubits for quantum sampling tasks. The quantum sampling stage involved approximately **9,200 quantum circuits**, required more than **100 hours** of execution time, and generated about **1.3 billion noisy measurement records**. These data were subsequently analyzed and reconstructed through extensive classical post-processing.

In other words, the quantum processor functioned as a specialized component within a much larger classical computational workflow. The research team emphasized that the method does not yet outperform the best available classical approaches and therefore should not be considered evidence of **quantum advantage**. Nevertheless, the results demonstrate continuing improvements in the accuracy and efficiency of quantum–classical hybrid methods.

This collaborative architecture enabled the successful treatment of molecular systems at a scale previously difficult to achieve. Compared with earlier quantum chemistry demonstrations, this study significantly expanded both system size and computational precision, establishing a foundation for future simulations of even more complex biological molecules and advanced materials.

Significance for Industry and Scientific Research

This work highlights the long-term potential of quantum-assisted simulation of large biomolecular systems.

1. Drug Discovery

More accurate simulations of protein–drug interactions could help researchers identify promising compounds earlier in the development pipeline, reducing the need for costly and time-consuming experimental screening.

2. Materials Design

In fields such as battery technology, catalysis, and functional materials development, quantum-assisted computation may improve the prediction of critical material properties and accelerate innovation.

3. Lowering Development Costs and Risks

By eliminating large numbers of unpromising candidates during the simulation stage, companies and research institutions can focus resources on the most promising solutions, thereby reducing development costs and technical risks.

From “Replacement” to “Collaboration”: A Changing Role for Quantum Computing

This milestone also reflects a broader shift in how quantum computing is viewed. Rather than completely replacing traditional high-performance computing systems, quantum computers are increasingly expected to function as **specialized accelerators** that provide advantages for specific computational tasks.

As quantum hardware continues to improve in stability, and as noise mitigation and error-correction technologies advance, both academia and industry increasingly regard quantum–classical hybrid architectures as one of the most promising pathways toward practical quantum advantage.

Outlook: Toward Larger and More Accurate Molecular Simulations

The scientific community generally expects that future increases in qubit count and hardware quality will allow hybrid quantum–classical workflows to address even larger and more complex biological and materials systems. Potential applications include:

- Precision medicine
- Next-generation energy technologies
- Advanced materials design
- Computational drug discovery
- Molecular engineering and optimization

For investors and organizations monitoring emerging technologies, this achievement remains an early-stage development. However, it sends a clear signal that quantum computing is gradually evolving from a proof-of-concept technology into a practical tool capable of supporting real-world research and development decisions. Its long-term industrial and scientific impact warrants continued attention.

References

1. Kenneth M. Merz Jr., et al., (2026) Crossing the 12,000-atom barrier with heterogeneous quantum-classical supercomputing: quantum chemistry of protein-ligand complexes. arXiv:2605.01138 [quant-ph].

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