

Komaba Commons Lab

The future of core facilities starts here

About “Komaba Commons Lab”

The Komaba Commons Lab is a future-oriented shared research infrastructure formally established in April 2026. Rather than being a mere extension of conventional organizations focused on the management and operation of shared equipment, the Lab was founded to implement new modes of research by leveraging the interdisciplinary research environment of the Institute of Industrial Science (IIS). Currently, it functions as an integrated platform that connects various research utilities and collaborates with existing organizations such as the Komaba Analytical Core. However, its aim is not simply to expand these entities as traditional shared facilities. The Institute of Industrial Science encompasses nearly all fields of engineering, while maintaining a scale at which researchers can mutually recognize and collaborate with one another—approaching the upper limit of the so-called “Dunbar number.” Building on this unique strength, the Komaba Commons Lab seeks to establish a new research infrastructure that organically integrates knowledge and technologies across all domains of engineering, including fundamentals, mechanical engineering, electrical and information engineering, materials science, and architecture.

In particular, against the backdrop of rapid advances in AI and Physical AI, the Lab promotes the automation and autonomy of analysis and measurement, the advancement of data-driven analysis, and the development of autonomous measurement systems that integrate robotics and AI. Through these efforts, it aims to realize a new research paradigm that unifies measurement, analysis, and design.

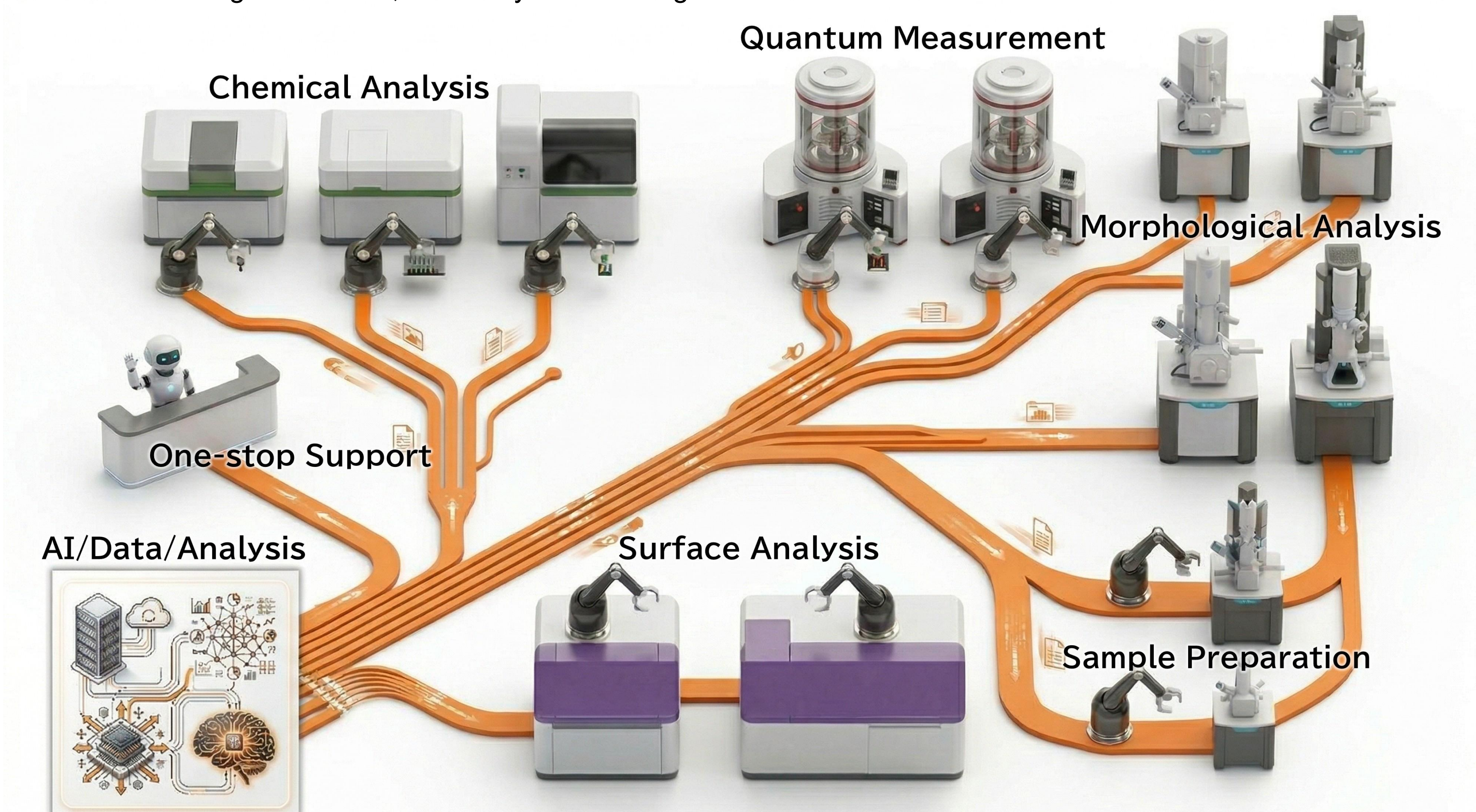
The Komaba Commons Lab goes beyond the conventional framework of shared-use facilities, and will evolve as a platform that accelerates research and development and creates new value through cross-disciplinary collaboration spanning the entirety of engineering.

Our Vision

The Komaba Commons Lab does not aim to physically centralize dispersed instruments and functions into a single location. Instead, it seeks to establish a new research infrastructure that connects, integrates, and circulates knowledge by linking these distributed resources. The key lies in leveraging the diversity and specialization of different instruments while organically connecting them through data.

At the Institute of Industrial Science, a wide range of advanced analytical capabilities are available, including chemical analysis, surface analysis, structural and morphological characterization, and quantum measurement. In addition, diverse research utilities exist, such as electrical circuit design and component fabrication using 3D printers in the prototyping facility, as well as device fabrication in cleanroom environments. Furthermore, comprehensive expertise across virtually all fields of engineering—embodied by faculty members and students—coexists within a single organization. Rather than treating these functions independently, the Komaba Commons Lab reconfigures them into an interconnected framework, enabling flexible combinations as needed and thereby generating new research workflows.

A conceptual vision of the Lab is illustrated in the figure below. Processes such as sample preparation, device fabrication, analysis and measurement, and AI-driven data analysis are expected to operate not as isolated steps, but as interrelated components within a unified system. By incorporating robotics and AI, the Lab advances a new mode of research that tightly links measurement, analysis, and design. At the same time, by aggregating and integrating measurement and analysis results, it creates new knowledge and value, ultimately accelerating users’ research activities.



The Komaba Commons Lab aims to establish a future-oriented core facility that realizes a closed-loop framework integrating “making,” “measuring,” “understanding,” and “designing” as a unified process. This vision inherently relies on collaboration beyond individual disciplines, and can be practically implemented by leveraging the unique organizational structure of the Institute of Industrial Science—where diverse fields coexist at a scale that enables mutual recognition and interaction among researchers.

Building upon this foundation, the Komaba Commons Lab will cultivate a new research environment incorporating AI and Physical AI, thereby contributing to the evolution of research and development itself.