



IMAGINE  
THE  
FUTURE.

# TACKLING GLOBAL ISSUES

Located in the heart of Tsukuba Science City, **THE UNIVERSITY OF TSUKUBA** is a leading national research-oriented university spearheading collaboration across organizational, industrial and national borders.

**With roots extending back to 1872**, when it was founded as modern Japan's first national higher education institution, the University of Tsukuba is the anchor institution of Tsukuba Science City — Japan's premier science-and-technology hub. Its mission is to generate knowledge and develop leaders who can address the global issues of the 21st century. This mission and the university's founding philosophies of "transdisciplinary education and research" and "being open to society" are more important than ever in today's environment of ever increasing complexity and interconnectivity.

## Creating new solutions

Tackling today's issues requires breakthrough solutions from new academic fields birthed through transdisciplinary collaboration. For example, by integrating neuroscience, computer science, robotics and

medical science, the Center for Cybernetics Research has created the world's first medical robot, while the International Institute for Integrative Sleep Medicine, a World Premier Institute, is investigating the mystery of sleep through molecular genetics, neuroscience and chemistry. Combining medicine and nuclear physics, the university's hospital is developing accelerator-based boron neutron cancer therapy (BNCT), which leaves healthy cells undamaged. With Toyota Motors, the Next-Generation Social System Project is considering the future of transportation from the perspectives of both technology and social science.

To support such basic research and innovation and further computational science, the world-class Center for Computational Sciences, in collaboration with the University of Tokyo, recently inaugurated

its newest supercomputer, Oakforest-PACS. With 8,208 next-generation, many-core processors, it is the fastest supercomputer in Japan and is ranked third in the world by the High Performance Conjugate Gradients Benchmark project and sixth in the TOP500 list.

## Nurturing global leaders

To nurture global leaders who can work across disciplines, sectors and nations, the University of Tsukuba is introducing a university-wide diploma system that offers transdisciplinary graduate programmes that reflect the emerging needs of society. The university is promoting collaborative programmes with both Japanese and overseas research institutions. For example, the Program in Life Science Innovation is a graduate-school programme in which students learn and work with leading researchers

from nearly 20 top corporations and research institutions. The PhD Program in Empowerment Informatics combines cutting-edge research in arts, business and medical science with a view to developing innovations that overcome human constraints through realizing seamless connection to technology.

Also, under the Re-Inventing Japan Project of the Ministry of Education, Culture, Sports, Science and Technology, the university operates four international programmes in conjunction with universities in Asia, Europe, Russia and South America.

Through such collaboration and programmes, the university is endeavoring to "imagine the future." ■

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