

Division of Environmental Science

Division of Social Engineering and Environmental Management

Department of Urban Environment Development

The environment which surrounds us consists of various areas of human society and nature, and provides a base for human activities. In order to create a attractive and wealthy environment in cities and other areas of living, it is necessary to examine the present condition of the environment



and to improve its quality over the long term.

Education and research subjects of the department are focusing on a development of technology of disaster prevention and reduction, conservation of infrastructure based on civil engineering.



Department of Rural Environment Management

An ideal rural environment can only be accomplished through harmony among human activities, resource supplies, and natural environmental capacities. Complex and complicated interaction between the natural environment and human activities must be maintained by incorporating "functionality" and "sustainability" into the basic philosophy. Therefore, the following educational and research activities are performed: 1) Analyses of the mechanisms of the natural environment, including soil,



water and plants, using holistic approaches that encompass functional relationships in a regional environment. 2) Planning of a regional space where a land conservation function is expected. 3) Establishment of a model and technology for sustainable resource use and circulation of water, biomass, and land resources toward creating a rich regional environment.

Division of Biological and Human Environment

Department of Environmental Ecology

Environmental problems have been caused in the complex relations between humans' activities and natural environments, from local to global scale. The objective of this department is to resolve these environmental problems from the aspect of environmental ecology. The department aims to develop research and education, which focus on the symbiosis between human beings and natural environments, and the establishment of sustainable recycling-based society. For the symbiosis, we research into the interrelations between organisms and environments, and the structure, dynamics, and functions of ecosystems. In additions, we evaluate biodiversity, and propose conservation regimes. For the



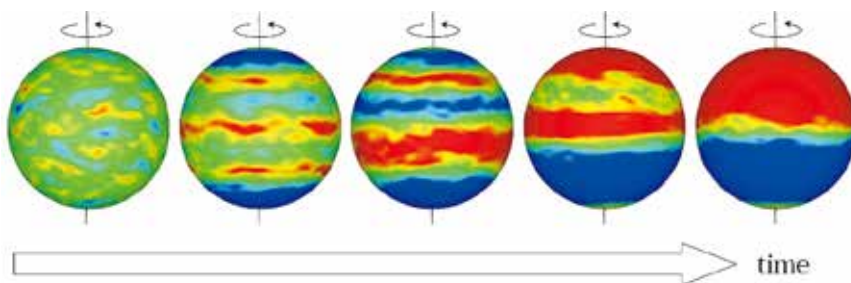
establishment of a sustainable recycling-based society, we study the utilization and management of specific



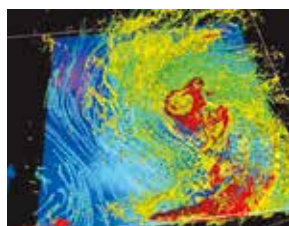
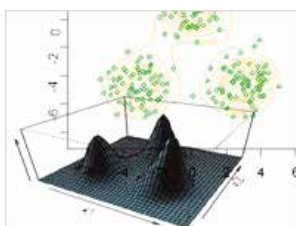
resources to regions and reconstruction of sustainable biological production systems.



Department of Human Ecology



The Department of Human Ecology conducts education and research on various problems that directly impact human health and existence, both theoretically and practically, and current members include specialists in the fields of health, medical and mathematical sciences.



Division of Sustainability of Resources

Department of Sustainable Society Studies

Toward sustainable society, Researches from various perspectives are required. In this course, we will mainly educate and research about the following theme.

- Environmentally friendly, efficient and comfortable city / transportation planning, and town development planning considering the landscape, local uniqueness and history of the region.



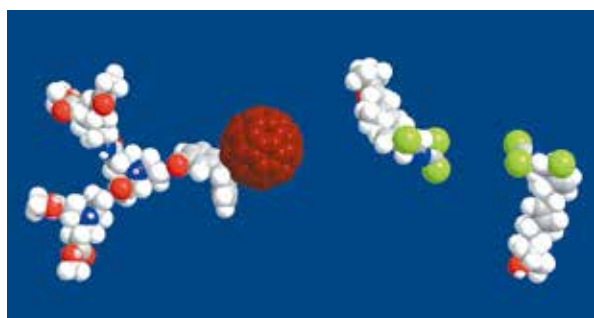
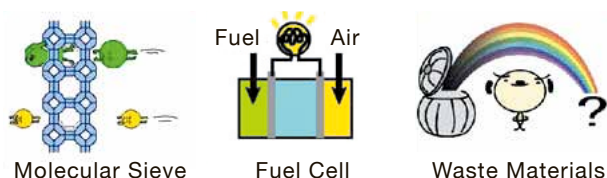
- Water quality control technology (water treatment) and relationship between material transport and aquatic ecosystems to make our society safe, comfortable, and sustainable.

- Living environment, life style and their supported social system on the basis of zero carbon emission, sound material cycle, and coexistence with nature.

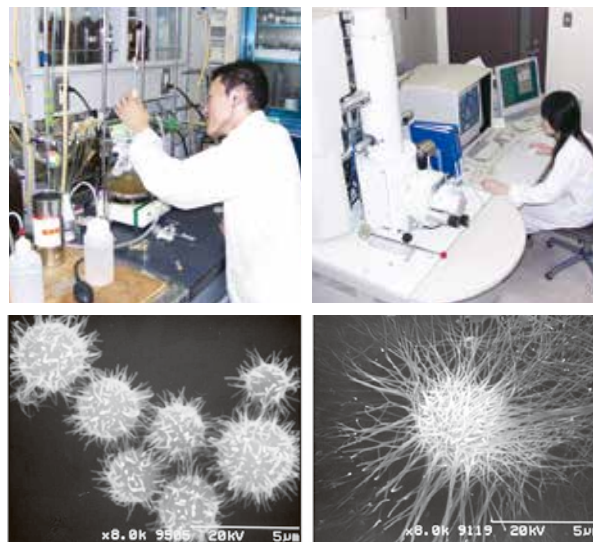


Department of Material and Energy Science

New scientific technologies have a vital role to play in solving environmental problems like global warming, ozone layer depletion, acid rain, and pollution by volatile organic compounds and hazardous metals. The



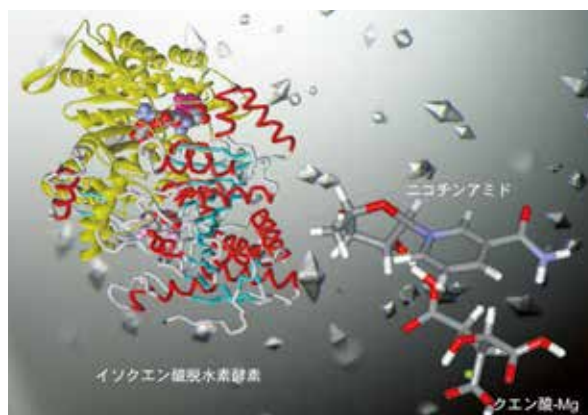
development of new chemical technologies is indispensable for the construction of sustainable society and achievement of SDGs.



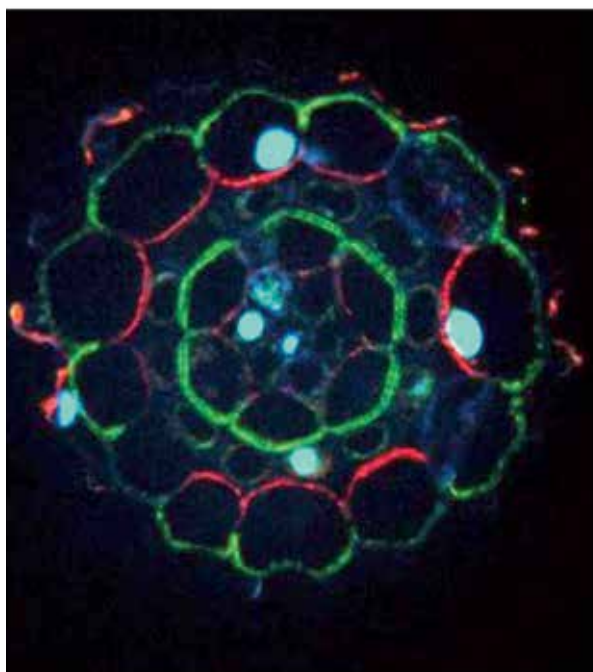
Division of Science for Bioresources

Department of Biofunctional Chemistry

The department's research focuses on Agricultural Chemistry, which is interdisciplinary research field encompassing bioscience, biotechnology, and agrochemistry. The study of Agricultural Chemistry includes fundamental investigations on life phenomena of plants, animals, microorganisms, and the chemical structures and functions of their bio-products and also advanced fields for applying our discoveries in ways that improve human society.



Department of Plant Stress Science



Influx (green) and efflux (red) transporters of silicon, a beneficial mineral for helping plants to overcome biotic and abiotic stress



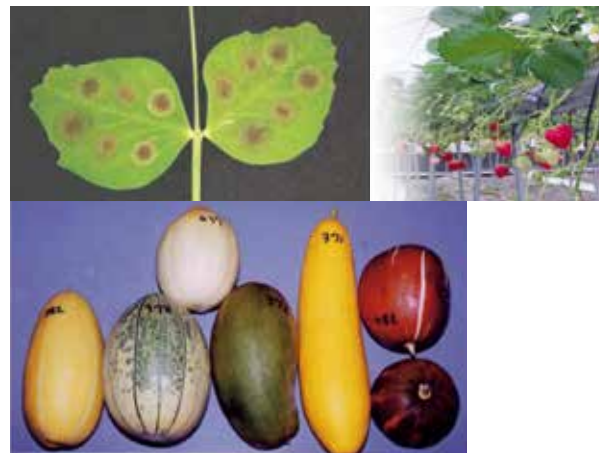
Diversity in barley spikes

Plants are exposed to a number of stresses including atmospheric, soil, and biotic stresses. Therefore, it is an important issue to overcome these stresses for sustainable food production. The educational and research subjects of this division are to discover novel genes involved in stress tolerance and to develop stress-tolerant plants by using diverse plant and genome resources.

Division of Science for Bio-Production

Department of Plant Science

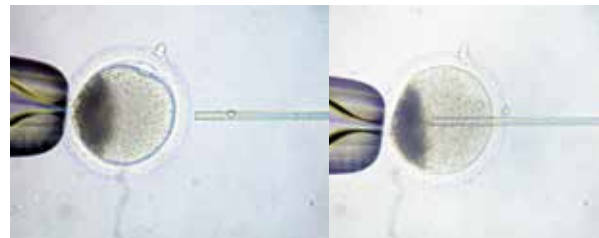
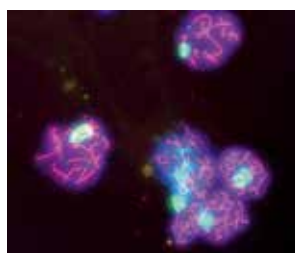
All life on the earth is dependent on the energy fixation of solar power through photosynthesis by plants. Sustainable, reliable, and safe food production and a high quality supply is essential for our lives in the 21st century. In addition, the exploitation of Bio-energy has become a pressing concern. Innovative technology based on a deep understanding of plant physiology, ecology, and genetics and their diseases will lead to overcoming the challenges facing our food supply. Based on plant science, we study and direct advanced technology for breeding, disease control, propagation, cultivation and postharvest handling in agricultural and ornamental crops.



Department of Animal Science



Human society is related to animals in diverse ways; animals are used not only for food production but also for experimentation in medical and pharmaceutical research, which serves as the basis for healthcare, medicine and pharmacy. Animals also function as means of psychological therapy and serve as companion creatures. Such utilization and application of animals to human activities involves numerous problems that cannot be resolved without applied research and tech-



nological development, which are based on fundamental research. With this fact in mind, the Department of Animal Science carries out fundamental research to clarify various functions (heredity, reproduction, physiology, immunity, nutrition and ecology) relating to vital phenomena at the levels of animal cell, individual and group. The Department also works on applied research to find solutions for various problems relating to animal production, human health and medicine, to apply such solutions in technological development, and even to address challenges in the biotechnology-based production, management and logistics of livestock food products. Through these research activities, the Department seeks to develop human resources who are equipped with highly specialized knowledge based on comprehensive perspectives, and who have problem-solving and R&D capabilities.