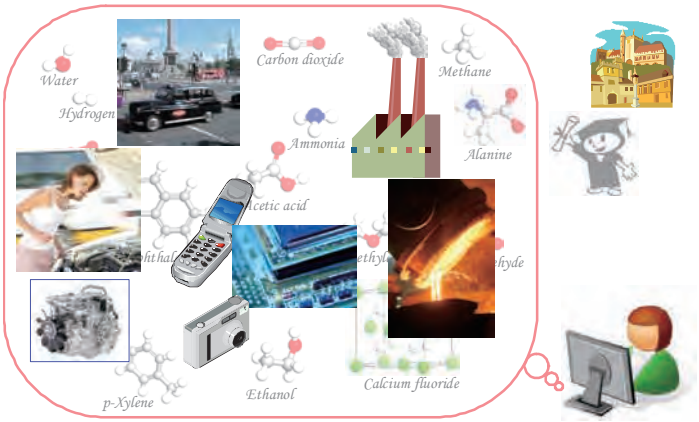
Akira Miyamoto ／ Professor ／ New Industry Creation Hatchery Center (NICHe)

Profile

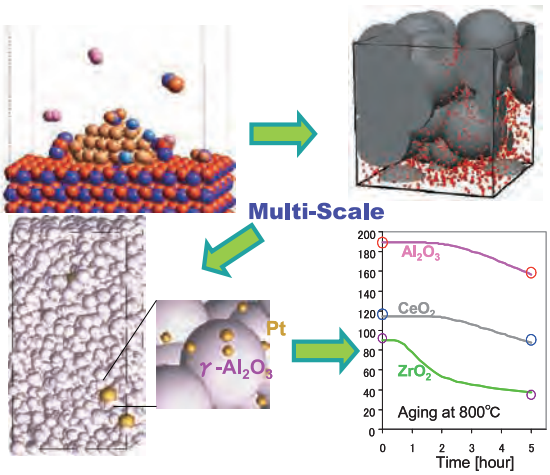
Dr. Akira Miyamoto graduated from Suzuka College of Technology in 1968. He was incorporated into the Department of Applied Chemistry, Tohoku University where he completed his studies and was awarded a Doctor of Engineering degree in 1975. The same year he joined the Department of Synthetic Chemistry, Nagoya University, where, as a research associate, he was engaged in catalyst research for environmental clean-up. He then joined the Department of Hydrocarbon Chemistry, Kyoto University to finally become a full Professor at the Department of Molecular Chemistry & Engineering, Tohoku University in 1992. After more than 20 years dedicated to the experimental study of catalysts, he threw away all the apparatuses he had been using so far to undertake a brand new research project in the nascent field of computational chemistry. In 2002 he also became a full professor at the New Industry Creation Hatchery Center (NICHe), and in 2004 he led the installation of the industrial endowed chair for Combinatorial Chemistry at Tohoku University.

Research Activities

The human race is being challenged by global problems such as environmental change, food supply and many others that are dynamically changing through time. Under these circumstances, I believe that the role a university must accomplish in our days is to create new areas of study to keep pace with our changing times. With this idea in mind I have been aiming for the creation of the field of computational chemistry as a new and necessary field of study. Computer chemistry is a field that takes advantage of the calculation and graphic abilities of modern computers to represent chemical compounds and materials at the atomic and molecular level, in order to analyze and predict chemical phenomena according to the laws that govern the natural world. Besides developments aiming at solidifying the basics of computational chemistry in my laboratory, we are making indefatigable efforts to bridge the gap between the micro world (the world of atoms and molecules) and the macro world (the actual industrial product). The results are used by a variety of industries like the car, electronics, electric power, and gas industries and our originally developed chemistry software is also being used by different companies and enterprises in these areas. With the slogan “Science at the service of society, and original technologies give birth to new scientific fields”, we aim to contribute to the strengthening of the technological bases of the industrial sector as well as to further advancement of the field of computer chemistry which in recent years has undergone unprecedented development.



Solution from computational chemistry to various kinds of industrial issue.



Catalyst design integrated microscopic and macroscopic simulation techniques.

Message

In getting to know that molecules are the cause of color differences in the natural world I felt a keen interest in chemistry from a very young age. Research that started from this interest would make me get acquainted with the new field of computational chemistry and allow me to lead a group that can boast members exceeding 200 people at present, one of the largest in this field around the world. With computational chemistry gaining status as a routine problem solving tool in the industrial sector, interest in the field has also increased both nationally and internationally, and a large number of eager international students are gathering to pursue research in computational chemistry in our laboratory. With one research objective in mind, constructive competition can only add to self improvement as individuals, and it will undoubtedly result in benefits for society as a whole. A university is in fact able to create study fields that can transform dreams into reality. Therefore, I wish that each and every one of you may join us at this institution full of intellectual stimulus, and, embracing a big dream, you can also create a new scientific field.