Curriculum Vitae

Junichi Tatami
Date of Birth: August 14, 1969
Current Position: Professor, Graduate School of Environment and Information Sciences, Yokohama National University, Japan

PROFESSIONAL BACKGROUND:

April 2018 -	Project Leader, Kanagawa Institute of Industrial Science Technology
April 2012 -	Professor, Graduate School of Environment and Information Sciences, Yokohama National University
April 2006 - July 2006	Visiting Researcher, University of Pennsylvania
October 2005 - March 2006	Visiting Associate Professor, Materials and Structures Laboratory Tokyo Institute of Technology
December 2002 – March 2012	Associate Professor, Graduate School of Environment and Information Sciences, Yokohama National University
April 2001 - November 2002	Research Associate, Graduate School of Environment and Information Sciences, Yokohama National University
August 1999 - March 2001	Research Associate, Graduate School of Engineering, Yokohama National University
December 1997 - July 1999	Research Associate, Faculty of Engineering, Department of Materials Chemistry, Yokohama National University
April 1997 - November 1997	Research Fellow of Japan Society for Promotion of Science, Tokyo Institute of Technology

Education:

March 1997	Department of Inorganic Materials, Graduate School of Engineering, Tokyo Institute of Technology (Doctor of Engineering)
March 1994	Department of Inorganic Materials, Graduate School of Engineering, Tokyo Institute of Technology (Master of Engineering)
March 1992	Department of Inorganic Materials, Faculty of Engineering, Tokyo Institute of Technology (Bachelor of Engineering)

PROFESSIONAL ACHIEVEENTS

Dr. Tatami's research activities have focused on two essential areas of engineering ceramics: elucidating the nature of fracture to "understand" the origin of ceramic reliability and powder processing to "create" new reliable and functional ceramics. He has elucidated the nature of fracture of ceramics from various aspects. One of the typical and original findings is evaluation of grain boundary fracture toughness. Very little experimental work had been made on the measurement of mechanical properties of grain boundary, though they are important information to improve reliability of ceramics because intergranular fracture usually dominates the fracture of ceramics. He measured the grain boundary fracture toughness of Al_2O_3 using bicrystals prepared by joining two sapphire crystals and found that it depended on the crystal orientation for the first time. In recent years, he developed the new technique to directly evaluate the grain boundary fracture toughness of ceramics using microcantilever beam specimens. As a result, the grain boundary fracture toughness of Si_3N_4 ceramics was successfully measured first in the world, experimentally revealing that it significantly depended on the sintering aids. Furthermore, the stochastic model for describing crack path and fracture toughness, the numerical FEM simulation of crack propagation, and the nanofractography of ceramics by scanning probe microcopy have been developed to open a new frontier of ceramic fracture science. He has also researched the advanced powder processing to satisfy both reliability and functionality, such as synthesis and homogeneous dispersion of nanoparticles, formation of highly dense and homogeneous green body, insitu measurement and control of sintering behavior, and microstructure design at the nanoscale. One of the remarkable achievements is the development of the electrically conductive CNT-dispersed Si_3N_4 ceramics having high strength ($\simeq$ 1GPa) and high electrical conductivity (>100 S/m), which was realized via the lower temperature sintering and homogeneous dispersion of CNTs. Furthermore, he has energetically investigated microstructural control of various kinds of functional and structural ceramics using nanocomposite particles prepared by mechanical treatment. A typical example is the fabrication of high thermal conductivity Si3N4 ceramics using multilayered-graphene-coated β-Si_3N_4 seeds and their c-axis orientation in a low magnetic field. The organic linkage between the researches in fracture of ceramics and advanced powder processing is his unique and featured accomplishment. The developed materials and evaluation techniques have provided a great impact to not only academe but also industry, which have resulted in many joint researches with companies.