

Hiroshi Yokoyama, Dr.



Hiroshi Yokoyama is Professor of Chemical Physics and Ohio Research Scholar, Liquid Crystal Institute (LCI), Kent State University (KSU), Ohio, USA. The LCI is the world first research center dedicated to liquid crystal science and technology, established by G.H. Blown in 1965, and played a major role in bringing the LCD industry to today's status of a major electronics industry comparable with the semiconductor industry. He is active in research and education in the area of nano-science and technology of soft matter, under the umbrella of the Ohio Third Frontier initiative

with a major funding from the State of Ohio for a project entitled "Research Cluster on Surfaces in Advanced Materials (RC-SAM)". His research interest has a wide spectrum from experimental and theoretical study on liquid-crystal surfaces, self-organization and nonequilibrium phenomena in soft condensed matter, to scanning probe microscope instrumentation.

Before joining LCI in 2009, he served for seven years as Director for Nanotechnology Research Institute (NRI), National Institute of Advanced Industrial Science and Technology (AIST), one of the biggest government funded research organizations in Japan with over 2500 higher level technical staff. As a research unit of AIST, Nanotechnology Research Institute is primarily responsible for strategic planning and implementation of research programs over the whole spectrum of nanotechnology. Under his directorship, NRI has made significant contributions to the field such as super-inkjet technology, nanostructured liquid crystals, active targeting drug delivery systems, spintronics materials and devices, controlled-production of carbon nanotubes and their applications, to name but a few. NRI is also responsible for operating the AIST, NanoProcessing Facility (NPF), a nanotech infrastructure consisting of some 50 state-of-the-art micro- and nano-fabrication and characterization equipments. NPF is one of the core members of the Nanotechnology Network Program, providing nanotech community with free access to cutting edge tools and expertise.

Hiroshi Yokoyama was born in Tokyo in 1954. He earned Master of Engineering from Tokyo Institute of Technology in 1979 in Physical Electronics. Later in 1987, he received Doctorate. He joined in 1979 the Electrotechnical Laboratory, which was reorganized into AIST in 2001. He started his research career in the field of liquid crystal physics with focus on the surface properties, and made several contributions that made him known as a world expert. He spent a year as a visiting scientist at AT&T Bell Labs in 1987-1988, where he started his research on organic monolayers. In early 1990s, he started his scanning probe microscopy research and invented scanning Maxwell-stress microscopy, and got interested in scanning probe-based nanofabrication. He was appointed the director, Yokoyama Nanostructured Liquid Crystal Project, ERATO, JST in 1999, which is a multi-million dollar 5-year project and successfully came to an end in 2004. The ERATO project was succeeded by a follow-up project, entitled "Liquid Crystal Nanosystem project, also funded by JST.

He has been active in academia and served several terms as associate editor and Editor-in-Chief, Japanese Journal of Applied Physics. He also served as Regional Editor for Asia, Nanotechnology, IOPP, from 2002 to 2007 and as the Editor-in-Chief, Japanese Journal of Applied physics for 2000 and 2001. He has been a member of editorial advisory board of

Molecular Crystals and Liquid Crystals since 1996. He is currently an associate editor for The European Physics Journal E: Soft Matter and Biological Physics, and is also on the editorial board for Journal of Physics: Condensed Matter. For 30 years of his scientific career in surface physics of liquid crystals, complex organic systems, and scanning probe microscopy for functional imaging, he published over 240 refereed papers, co-authored several books and filed over 100 patents.

From 2005 through 2007, he served in part as the executive board member of “NanoSystem Solutions Inc.”, an AIST authorized startup company, with a view to commercializing his mask-free lithography technology and its applied products in the biochip area.