


Name:	Kenichi Yoshikawa	
Affiliation:	Faculty of Life and Medical Sciences, Doshisha University, and Center for Integrative Medicine and Physics, Institute for Advances Study, Kyoto University	
Email:	keyoshik@mail.doshisha.ac.jp	
Academic degree:	PhD, Physical Chemistry, Graduate School of Engineering, Kyoto University (1976)	
Professional Experience:	1976 – 1989 Assoc. Prof., College of General Edu., Univ. Tokushima 1989 - 1992 Assoc. Prof. & Prof., College of General Edu., Nagoya Univ. 1992 – 1998 Prof., Graduate School of Human Informatics, Nagoya Univ. 1998 – 2012 Prof., Depart. Physics, Graduate School of Science, Kyoto Univ. 2012 – Prof. & Guest Prof., Faculty Life Medical Sci., Doshisha Univ.	
Current Research:	Biological Physics and Nonlinear Science: 1) Physics on macro- molecules and membranes, including the structural transition of DNA molecules in relation to their genetic activities. 2) Spatial-temporal self-organization under far-from-equilibrium condition: Real-world experiment and theoretical modeling. 3) Chemo-mechanical energy transduction under isothermal condition: Generation of autonomous motion driven by chemical energy.	

Self-Emergent Structure & Function on Hierarchical Life System: Real-World Modeling

Kenichi Yoshikawa

Faculty of Life and Medical Sciences, Doshisha University, and
Center for Integrative Medicine and Physics, Institute for Advances Study, Kyoto University

Currently, many numerical studies have been carried out to shed light on the underlying mechanisms of spatio-temporal self-organization in life. Many of the current studies seem to remain as superficial interpretations because of the complexity of actual living systems. In the present talk, I would like to show some examples of real-world modeling, which help us to gain deeper insight on the essence of life. 1) Specific property of genome-sized DNA molecule. 2) Emergence of cell-like structure & function under crowding condition with macromolecules. 3) Self-organization of cellular assembly.