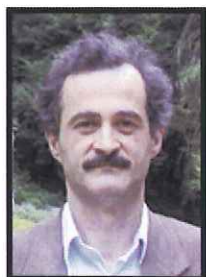


Pathways Lecture Series in Mathematics, KEIO



Speaker : **Prof. Samson L. Shatashvili**
(Trinity College Dublin, IHES)

Place : **Discussion Room 6 (14-216)**
2nd Floor, Building 14
Yagami Campus, Keio University

Lecture 1 16:30 ~ 18:00 February 8, 2007 (Thursday)

Lecture 2 16:30 ~ 18:00 February 9, 2007 (Friday)

Topological Quantum Field Theories and Some Modern Problems of Mathematics

Topological quantum field theories give important inside into various deep problems of mathematics. In the begining of these lectures I give introduction to topological quantum field theories in various space-time dimensions relevant to Gromov-Witten theory, Donaldson theory, Chern-Simons theory and quantization of various moduli spaces. Topological strings, Kodaira-Spencer theory and related topics will also be introduced. I conclude with review of recent results about relation between quantum gauge theories based on Higgs bundles and double affine Hecke algebras. Appearance of Bethe Ansatz equations, the topic previously well developed in the theory of integrable systems, in above topological gauge theory plays the central role and turns out to be related to many ideas from recent studies of geometric Langlands correspondence.