NYU-ECNU
Institute of Mathematical Sciences
at NYU Shanghai

PROBABILITY SEMINAR

TOPIC: **Convolution on Rooted Tree Graphs**

SPEAKER: **William Faris, Visiting Professor of Mathematics, NYU Shanghai**

TIME: 15:00-16:00, 4 December 2014

VENUE: Room 357, Geography Building, 3663 Zhongshan Road North, Shanghai
(中山北路校区，地理楼 357 室)

ABSTRACT OF THE TALK

There is a remarkable group structure defined for functions on rooted tree graphs. This arises quite naturally when considering series solutions of ordinary differential equations. It was discovered by Butcher in the context of numerical analysis. It also occurs in the work of Connes and Kreimer on renormalization in quantum field theory. The formulas that occur in this work usually involve complicated combinatorial coefficients. Here we develop a framework in which these coefficients are all equal to one.

BIOGRAPHY

William G. Faris is Visiting Professor of Mathematics at NYU Shanghai. He is also Professor Emeritus at the University of Arizona. Prior to that, he was a Fulbright Lecturer at the Independent University of Moscow. He has also been a Visiting Professor at the Institut des Hautes Etudes Scientifiques, a Visiting Member at the Courant Institute of Mathematical Sciences at NYU, a Visiting Fellow at the Newton Institute, and a Visiting Scholar at the University of British Columbia. He holds a PhD from Princeton University and a BA from the University of Washington.

Professor Faris's research interests are mathematical physics, applied probability, and combinatorics. His books include Self-Adjoint Operators (Springer, 1975), Martingale Methods in Elementary Probability(Independent University of Moscow, 1996), and Diffusion, Quantum Theory, and Radically Elementary Mathematics (Princeton University Press, 2006). He has published over fifty articles in mathematics and mathematical physics.