WICHITA STATE UNIVERSITY
Department of Mathematics and Statistics

The Lecture Series in the
Mathematical Sciences Presents Our Guest:

Professor Yuri Gliklikh
Voronezh State University, Russia

"Stochastic differential equations in mean
derivatives and their applications to
mathematical physics"

Abstract:
A new type of stochastic equations, Equations in Mean Derivatives (EMD) is introduced. The
notion of mean derivative was suggested by E. Nelson to meet the needs of quantum mechanics.
First examples of EMD have appeared in mathematical physics some time ago (the so-called
Newton-Nelson equation, describing stochastic evolution of a quantum particle, a certain
stochastic version of Newton's law on groups of diffeomorphisms, describing the motion of
viscous incompressible fluid, etc.). However, the problem of studying EMD as a special class of
equations has not been set up. In the talk, the concept of EMD is described for Euclidean spaces,
Riemannian manifolds (in particular, in infinite dimension) and on space-time of General
Relativity. The list of mean derivatives for a broad class of processes is given. Applications to
mathematical physics are discussed.

Friday, February 13, 1998
3:00 PM in Room 335 Jabara Hall

Please join us to welcome our speaker and enjoy refreshments
before the lecture at 2:30 p.m. in room 353 Jabara Hall