

PHYSICS COLLOQUIUM

Seminars

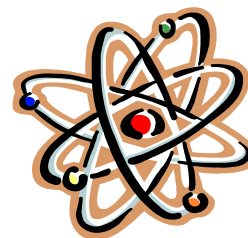
Gerald A. Miller

UW Physics

“Towards a Simple Stochastic Model of Transcription”

Monday, March 3, 2008

4:00 PM, Ronald Geballe Auditorium, Rm. A-102



March 3-7, 2008

Abstract: The central dogma of biology is that "DNA makes RNA makes protein". Proteins are the work-horse of the cell, performing an astonishing array of functions. These include serving as catalysts in all metabolic processes, storing and transporting essential metabolites carbon dioxide and oxygen and regulating the expression of genetic information. Transcription is the process whereby DNA is copied into the messenger-RNA that tells cells how to make protein. A copying protein, RNA Polymerase (Pol II), acts as an enzyme to make the RNA. Recent experimental developments at the UW Medical School enable the study of the space-time dependence of the Pol II as it propagates down the length of the DNA. This process is believed to be random, so we are developing a simple model, using the Fokker-Planck equation, in which the transcription process is described by three or four phenomenological parameters. The literature suggests that two of these parameters can be strongly influenced via treatment with external chemicals. If so, one could quantify the relation between treatment and cell behavior. This could lead to new kind of therapy.

Tuesday, March 4

Particle Theory Seminar

2:30 PM, Rm. C-421, PAT

Yigal Shamir, Tel Aviv University

“Voyage into higher-representation gauge theory”

Condensed Matter Seminar

4:00 PM, Rm. C-421, PAT

Boris Spivak, UW Physics

“Quantum superconductor-metal transition”

Thursday, March 6

Joint INT/Bartol Final Exam

3:30 PM, Rm. C-520, PAT

Joaquin Drut, UW Physics

“The Unitary Fermi Gas”

Astronomy Colloquium

4:00 PM, Rm. A-102, PAA

Ravi Sheth, University of Pennsylvania

“Understanding halo and galaxy bias”