PHYS-7147: QUANTUM FIELD THEORY

Instructor: Predrag Cvitanović
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Office Hours: see instructor home page

Time: TR 12:05-13:25
Room: Howey-Physics S107
Expected Enrollment: 10

COURSE DESCRIPTION: Functional integral formulation of field theories, quantization of gauge theories, radiative corrections, renormalization, running coupling constants; grand unification, factorization, parton evolution and scaling violations, and supersymmetry.

Time permitting, also some group theory, the quark model, chiral lagrangians, non-linear sigma models, the standard model, the U(1) anomaly.

e-TEXTBOOKS:

1. M. Srednicki, *Quantum Field Theory, Part I: Spin Zero* - hep-th/0409035
2. P. Cvitanović, *Path integrals, and all that jazz*, (preliminary unedited notes are here: Please send me your edits!)
3. P. Cvitanović, *Field theory*
4. M. Srednicki, *Quantum Field Theory, Part II: Spin One Half* - hep-th/0409036

START: Tue Jan 11, 12:05 in Howey S107, with detailed syllabus available on www.cns.gatech.edu/~predrag/courses/PHYS-7147-03

PREREQUISITES: Quantum Mechanics, Statistical Mechanics

TEACHING METHOD: Two 1 1/2 h lectures per week

EVALUATION METHOD: Overal course grade will be determined from the homework (40%), midterm (20%), and the final (40%).