PHYSICS 7315
Quantum Field Theory II
TuTh 2:00 AM-3:20 pm
Dallas Hall Room 155 Spring 2021 2020

INSTRUCTOR   Roberto Vega
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OFFICE
HOURS   By arrangement.

Suggested Texts   *The Standard Model: A Primer* by Cliff Burgess and Guy Moore, *The QUantum Theory of Fields V. I* by Steven Weinberg, *QUantum Field Theory and the Standard Model* by Matthew D. Schwartz., or *Principles of Quantum MechanicsQuantum Field Theoey* by Mark Srednicki.

GRADING   The final course grade will be determined a follows. Homework 60%, exams 20%, final exam 20%.

EXAM DATES   Exam 1: Thursday 10MAR2022; Exam 2: Tuesday 12APR2022; Final Exam (take-home) due 11May2022 by midnight.

Objectives:
This is the second part of a two semester course on Quantum Field Theory. As in part one we will closely follow the Burgess textbook and extend some of the discussions with material from Weinberg's textbook.
For this second part of the course we will discuss non-abelian gauge theories and introduce the Standard Model of Particles Physics. Students will learn how to perform tree level calculations in the Standard Model.

Learning Outcomes:
Upon completion of this course students shoud able to:

- Have a basic understanding of the principles of Quantum Field Theory, including the understanding of a quantum field and its necessity.

- Have an understanding of the Standard Model including the underlying group structure, particle content,broken and unbroken symmetries and their consequences.

- Derive the Feynman rules for QED and the Standard Mdoel.

- Compute tree level calculations of Feynman diagrams.

SMU General Course Policies

Please read the information in this link: https://www.smu.edu/OIT/AcademicTech/Instructional-Guidelines/Syllabus/required-syllabus-statements regarding disability accomodations, COVID policies, final exam and other policies..

Classroom COVID policies

In order to make classroom environment comfortable for all students mask use will be required in class.