
UTRECHT SUMMERSCHOOL

IN

THEORETICAL PHYSICS 2010 (16-27 AUGUST)

Schedule of Classes	Topics in Statistical Physics (24hrs)	Topics in Electrodynamics (9hrs)	Topics in Quantum Mechanics (21 hrs)	Projects in Computational Physics (6 hrs)	Other Activities
Monday 16	09h-11.30h: Registration		13h-15h:	15h-17.30h:	Opening Lunch 12h00
Tuesday 17	09h-12h:		13h -17h:		
Wednesday 18	09h-12h:	14h -17h:			Lunch Talk: 13h-14h
Thursday 19		14h-17h:	09h-12h:	13h-14h:	
Friday 20	14h-17h:	09h-12h:			Lunch Talk: 13h-14h
Saturday 21					
Sunday 22	Summerschool Dinner				
Monday 23	09h-12h:		14h-16h	16h-17.30h:	Lunch Talk: 13h-14h
Tuesday 24	09h-12h:		13h-17h:		
Wednesday 25	13h-17h:		09h-12h:		
Thursday 26	14h-16h:		09h-12h:	16h-17h:	Lunch Talk: 13h-14h
Friday 27	9h-12h:				Farewell Lunch: 12h30

Lecturers:

Prof. dr. Henk van Beijeren (Topics in Statistical Physics; 1st week)

Dr. Rembert Duine (Topics in Statistical Physics; 2nd week)

Dr. Gleb Arutyunov (Topics in Electrodynamics)

Dr. Frank Witte (Topics in Quantum Mechanics; 1st week)

Prof. dr. Jan Ambjorn (Topics in Quantum Mechanics; 2nd week)

Prof.dr. Gerard Barkema (Projects in Computational Physics)

LUNCH TALKS

1. Cristiane de Moraes; August 18, 13.00h-14.00h

Title: The magic world of electrons in two dimensions

Abstract: In this talk, I will explain the behavior of strongly interacting electrons in low-dimensional systems, with an emphasis in two-dimensions. The integer and fractional quantum Hall effects will be discussed, and you will understand why two Nobel Prizes have been attributed to this field. I will also tell you about quantum phase transitions, and which are the consequences when an electron-solid melts into an electron-liquid phase.

2. Renate Loll; August 20, 13.00h-14.00h

Title: Quantum Spacetime 101

Abstract: What you always wanted to know about quantum gravity and did not know how to ask.

3. Gerard 't Hooft; August 23, 13.00h-14.00h

Title: The Higgs particle.

Abstract: One of the main targets for the Large Hadron Collider at CERN is to isolate and identify the Higgs particle. This is an electrically neutral, spinless particle that interacts with other particles with an interaction strength proportional to the mass of those other particles. Until today, the existence of a Higgs particle is hypothetical, being the result of theoretical ideas concerning the electro-weak interaction. Why do our theories predict such a particle, whose properties are significantly different from other particles that have been identified? Could we not make theories without Higgs particle? Could there be several species of Higgs particles? Could the Higgs particle be a composite object? What are the prospects of indeed detecting these particles at the LHC?

4. Tomislav Prokopec; August 26, 13.00h-14.00h

Title: Cosmic inflation

Abstract: Cosmic inflation is a hypothetical period of an accelerated, nearly exponential, expansion of the early Universe. After reviewing the basics of the scalar theory of cosmic inflation, I will outline the reasons why cosmic inflation has attracted recently so much attention in the scientific community.