The Physics Department of The University of Chicago Announces

A New Course for Winter 2002 Quarter (Physics 575)

ACCELERATOR PHYSICS AND TECHNOLOGIES FOR LINEAR COLLIDERS

Instructor: Kwang-Je Kim (kwangje@aps.anl.gov)

The high-energy physics community is in general agreement that a linear collider (LC) will be the most important high-energy physics accelerator project after the Large Hadron Collider (LHC) for comprehensive exploration of fundamental interactions on the TeV scale. The requirements of a linear collider are very challenging: high-current electron beams must be accelerated to several hundred GeV, focused to a few-nanometer spot, and collided with similarly prepared opposing positron beams. Thanks to the intense international effort on accelerator physics studies and hardware development during the past decade, it now appears that linear colliders meeting these requirements can be built.

This course will provide an introduction to the accelerator physics and technology topics required to construct a linear collider. It is intended for graduate students as well as advanced undergraduate students with a good background in classical mechanics and E&M. Prior knowledge of accelerator physics is not necessary. The course will begin with a basic introduction to accelerator physics and then progress into more detailed discussions of important subtopics by guest lecturers who are leaders in the respective areas. Attendance by scientists from Chicago-area institutions interested in the future development of high-energy accelerators is also encouraged.

Lecture Room: KPTC103, Physics Department, The University of Chicago
Time: Tuesdays and Thursdays 1:30-3:00 p.m.
Review and Exercise Sessions: Thursdays 3:00-3:50 p.m.

	TUESDAY	THURSDAY	TOPICS	LECTURERS
			Part 1. Introduction	
January		3	HEP Accelerators	S. Holmes (FNAL)
	8		Physics	Attend the LC Workshop
		10	Beam Dynamics	KJK
	15	17	Beam Dynamics	KJK
	22	24	LC Overview	T. Raubenheimer (SLAC)
			Part II. Subsystems	
	29	31	Particle Sources	J. Rosenzweig (UCLA)
February	5	7	Damping Rings	L. Emery (ANL)
	12	14	RF (RT)	J. Wang (SLAC)
	19	21	SCRF	L. Lilje (DESY)
	26	28	Beam Delivery	F. Zimmermann (CERN)
March	5		Ground Vibration	V. Shiltsev (FNAL)
		7	>1 TeV	W. Gai (ANL)