ACCELERATOR RESEARCH DIVISION POSTDOC OPPORTUNITIES

The SLAC Accelerator Research Division (ARD) has the mission to develop accelerator science and technology that will enable new accelerators in photon science and high energy physics as well as other fields of science, medicine and industry with R&D aimed at near-term, mid-term, and long-term development. The ARD division is divided into several departments whose areas of research are summarized below and in the links therein. If you are interested in joining any of these cutting-edge accelerator science programs as a postdoctoral research associate, see the application information at the bottom of this page.

ACCELERATOR TECHNOLOGY RESEARCH (Overview) - Sami Tantawi

ACCELERATOR TECHNOLOGY RESEARCH (LLRF) - John Fox

Our efforts in instability control and Low Level RF (LLRF) systems combine interests in accelerator dynamics and instability control with technology expertise in high-speed signal processing. The research involves machine physics measurements, design and development of instability control hardware, development of theoretical models of the dynamic interaction between rf systems and particle beams, applications of control techniques to asses system stability and robustness, and the development of special accelerator instrumentation for experiments. Ongoing projects span the physics of dynamic systems and beam interactions with rf systems. The efforts include experimental measurements and development of simulation models and simulation tools.

The program has a very strong technology base, and designs and develops new instruments and control systems using a mix of wideband rf/microwave and fast digital electronic technologies. Current projects include activities at LHC in high-current rf system dynamics and wideband 2 GS/Sec feedback control systems for Ecloud instability control. Ongoing collaborations with KEK and LNF-INFN study impacts of coupled-bunch instability control on transverse emittance in high-current storage rings, and the development of new beam diagnostics and control techniques.

ADVANCED ACCELERATOR RESEARCH (Laser Acceleration) - Eric Colby

We conduct experimental research to produce laser-powered accelerators using semiconductor and fiber technologies. There are opportunities to engage in EM computer simulation, structure nanofabrication, laser system development, and electron beam experiments. More information.

ADVANCED ACCELERATOR RESEARCH (Plasma Acceleration) - Mark Hogan

The Plasma Wakefield Accelerator (PWFA) Group uses the high energy electron and positron beams from the SLAC linac to drive large amplitude waves in high-density

plasmas. These plasma waves have been used to accelerate and focus the particles with world record gradients over 1,000 times those used in the rest of the linac. We are a small experimental team combining theory, computation and experiment to understand all aspects of beam-plasma interaction. Our efforts are focused on applying what we learn to revolutionize future accelerators and FELs. More information.

ADVANCED COMPUTATION DEPARTMENT - Cho-Kuen Ng

More information.

BEAM PHYSICS - Yunhai Cai

LINEAR COLLIDER (Overview) - Nan Phinney

The Linear Collider department is committed to the design and construction of a future electron-positron linear collider. LC department members are part of the International Linear Collider Global Design Effort which will produce a Technical Design for a collider based on L-Band superconducting RF by 2012. The SLAC group is leading the ILC effort on the Electron Source, Beam Delivery Systems, L-Band RF Power Sources, System Integration and Reliability and Operability issues. The LC department also collaborates with the CERN-based CLIC collaboration on a multi-TeV collider based on two-beam normal conducting technology.

LINEAR COLLIDER (RF Systems) - Chris Adolphsen

For the ILC Superconducting (SC) Electron/Positron Linacs and the FNAL Project X Proton SC Linac, we are developing a suite of low cost and highly reliable L-band (1.3 GHz) rf system components. They include Marx Modulators, Sheet Beam Klystrons, viable power rf distribution networks, combined power (350 MW) distribution systems, high power vector modulators and SC cavity power couplers. This research involves rf design, fabrication and experimental testing using high power L-band rf stations located in End Station B (ESB) at SLAC. Another program involves developing reliable, > 50 MW, X-band klystrons for a future room-temperature linear collider, and testing advanced accelerator structures using X-band facilities at ESB. Finally, various studies of linac beam dynamics, wakefield effects and linac beam line integration are underway. More information.

LINEAR COLLIDER (Beam Delivery) - Andrei Seryi

LHC ACCELERATOR RESEARCH - Tom Markiewicz

SUPER-B ACCELERATOR - Mike Sullivan

NEW INITIATIVES (FACET, PEPX, PX, Medical ...) - Tor Raubenheimer

APPLICATION INFORMATION

Postdoc positions are two-year academic appointments, renewable for a third year, to conduct original research under the guidance of the Stanford Faculty. A Ph.D. in physics or engineering is required. SLAC is an equal opportunity employer.

To apply, please send a letter with CV and a list of publications to the address below. In addition, arrange for three of your references to send their letters of recommendation directly to:

Dr. Robert J. Noble
SLAC National Accelerator Laboratory, MS 07
2575 Sand Hill Road, Menlo Park, CA 94025
Tel: (650) 926-4441
Fax: (650) 926-4365
Email: noble@slac.stanford.edu