

# **The Proposed Scientific Program for the Linac Coherent Light Source at Stanford**

Ingolf Lindau

Lund University and Stanford University

The Linac Coherent Light Source, LCLS, at Stanford is now under construction with an anticipated completion in 2008 and with a user program in place by mid-2009. LCLS is based on the SASE-concept (Self-Amplified Spontaneous Emission) and the first phase will have one undulator covering the spectral region 0.5-1.5 nm. After soliciting input from the scientific community in the spring of 2004 five main areas of research have been chosen and the scientists to lead these efforts have been identified. In this talk I will briefly review the five scientific thrust areas: atomic, molecular and optical physics; pump/probe diffraction dynamics; coherent scattering at the nano-scale; nano-particle and single molecular (non-periodic) imaging; and pump/probe high-energy-density physics.

The status of the planned experimental stations will be summarized. Finally I will report on two recent workshops at Stanford that have addressed the scientific case for soft x-ray science at LCLS.