E-Presentation: "Table Top Xray Laser"
Professor Robert L. Byer Stanford University
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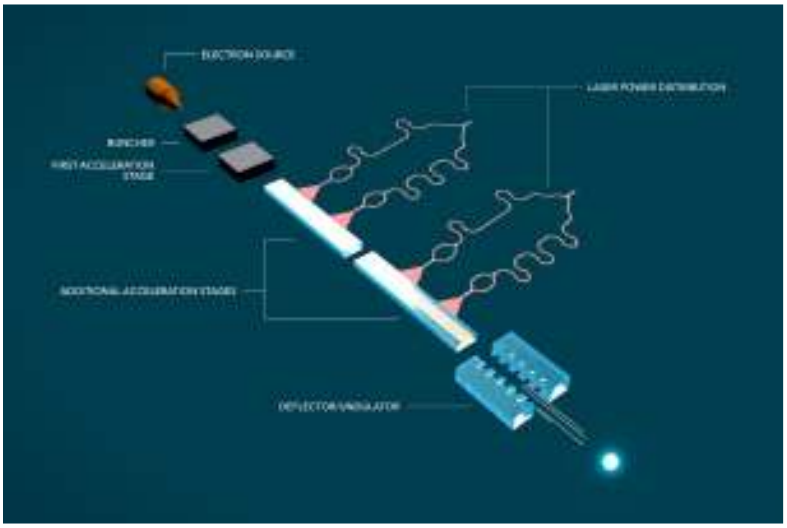

Abstract:
Bright, coherent X-ray sources from free electron lasers (FEL) are large systems. For example, the LCLS source at Stanford requires part of the SLAC linear accelerator and a large building with magnetic undulator magnets to produce coherent x ray pulses.

Dr. Byer is principal investigator for the ACHIP program at Stanford and co-leader of the ACHIP international collaboration. This technology uses laser light to accelerate electrons to high energies using a small photonic chip structure. These high energy electrons are proposed for generating coherent X-rays.

Dr. Byer will describe the effort to miniaturize the X ray laser to table top size.

About Our Speaker: Dr. Robert L. Byer is the William R. Kenan, Jr. Professor of Applied Physics and Co-Director Stanford Photonics Research Center at Stanford University.

Dr. Byer received his PhD from Stanford and joined the faculty there. He has conducted research and taught classes in lasers and nonlinear optics there since 1969. He was President of OSA 1994 and President of the American Physical Society in 2012. Byer held Stanford administrative positions: Vice Provost and Dean of Research, Applied Physics Dept. Chair, Ginzton Lab. Director, and Hansen Experimental Physics Lab. Director.

He has made major contributions to laser science and technology including: first tunable visible parametric oscillator, Q-switched unstable resonator Nd:YAG laser, tunable IR sources for remote sensing, CARS precision spectroscopy. His research group developed the NPRO laser, a key enabler for LIGO interferometers. Dr. Byer has published more than 500 papers and holds 50 patents in the fields of lasers and nonlinear optics. He founded three successful photonics companies—all of which were acquired.

Byer's ongoing research includes developing nonlinear optical materials and laser particle acceleration (ACHIP). He is a consultant on laser technology to numerous organizations. Dr. Byer received awards including IEEE/LEOS Quant. Electronics Award; OSA awards including Ives Medal, Adolph Lomb Medal, and Wood Prize; LIA's Schawlow Award, 3rd Millennium Medal IEEE, and IEEE Photonics Award. His professional membership includes OSA, AIP, and IEEE/LEOS. He is a Fellow of OSA, IEEE, APS, AAAS, and LEOS and is a member of the National Academy of Engineering and the National Academy of Science. He received the SPIE Maiman Laser Award this year.