



IEEE Photonics Society

The University of California Santa Barbara

Spring Banquet

Thursday April 24th, 6pm

UCSB Mosher Alumni House

All Santa Barbara photonics scientists are invited to the first annual UCSB Photonics Society Banquet!

The banquet is intended to bring local photonics scientists from industry & academia together to meet and learn about area photonics.

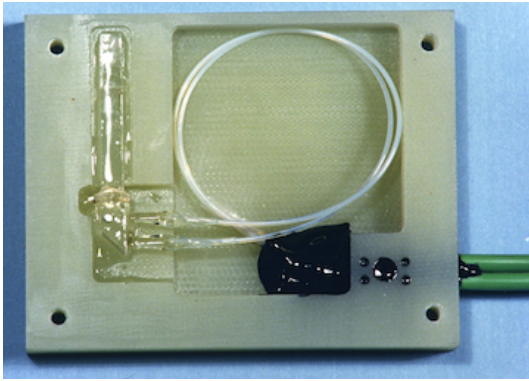
Graduate Students (21+): FREE

Non-Students (21+): \$15

The event includes a social hour and dinner (included in ticket), and will be followed by lectures from sponsors Intel & HP Labs, who will discuss their photonics activities. The invited speaker, Dr. Jerry Wyss of Toyon Research Santa Barbara, will be presenting

“Photonic RF Antennas in the Goleta Valley: A Historical Perspective”.

In the 1970's and 1980's, techniques were developed to modulate laser light using bulk crystals and other techniques. As fiber optic cables became available, researchers began to investigate possible sensors using bulk crystals powered by fiber cables. One early application was to build an RF antenna using a bulk crystal modulator with laser light fed by fiber cables. The electrical voltage from the antenna would be applied to the ...



...crystal, causing a polarization rotation in the light through the crystal. A simple polarizer would then convert this to an optical amplitude proportional to the RF signal applied to the antenna. The fiber cables would make this antenna portable and provide high-bandwidth. We

named these “photonic RF antennas.”

Much of this work was carried out locally. I will show you some very early examples of these photonic RF antennas developed right here in the Goleta Valley and discuss some of the techniques and challenges in their development. I will briefly discuss their application to the measurement of electromagnetic pulse (EMP) signals and why this was important.

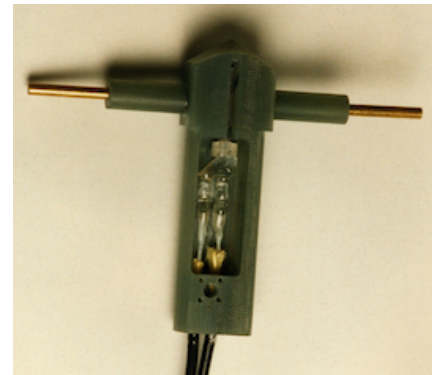
Jerry C. Wyss, Deputy Antenna Team Leader, Toyon Research Corporation,

attended the University of Edinburgh (Scotland) in 1972-73 and received his B.S.(high honors), M.A. and Ph.D. in Physics from the University of California, Santa Barbara in 1974, 1976 and 1978, respectively. Dr. Wyss has over 30 years of experience in experimental physics and instrumentation design including: 1) experimental optics such as electromagnetic photonic sensors, designs of new



laser systems and laser photoluminescence of potential new laser candidates; 2) experimental electromagnetic engineering including the development of novel non-perturbing EM probes for high electric field and for high ionizing radiation environments; 3) development of microprocessor based instrumentation for a number of commercial applications ranging from precision gas flow (‘Sonic Mass Flow Controller’, US Patent # 6,062,256), to precision liquid flow, and optical temperature measurement; and 4) experimental measurement, modeling and analysis of EM shielding effectiveness of chambers and buildings.

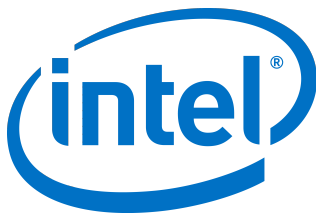
As a staff member and project leader at the US National Bureau of Standards (now NIST), Dr. Wyss was one of the pioneers in the application of laser and optical measurement techniques in the creation and design of optical photonic sensors for the precise and non-perturbing measurement of electromagnetic fields. These techniques were well suited for measuring EMP level fields, both in above ground simulations such as the ARES facility and in extreme radiation environments such as e-beam driven devices such as HERMES and directly in underground nuclear events at the Nevada Test Site. He has also designed precise control and measurement instrumentation for the semiconductor manufacturing industry. At NBS, Dr. Wyss led a team in the development of an analytical model to predict the propagation of EM radiation through building structures. For the last ten years he has worked in the RF Antenna Team at Toyon Research Corporation in Goleta, designing and producing specialized antenna hardware. He is presently a Deputy Leader of the antenna team.



An "RF Photonic Antenna" first developed in Goleta.

This event has been made possible by the generous support of our sponsors, Intel Corp., HP Labs, the IEEE and the UCSB Graduate Student Association. Representatives from Intel & HP Labs will additionally present some of the photonics activities of their companies.

Sponsored by



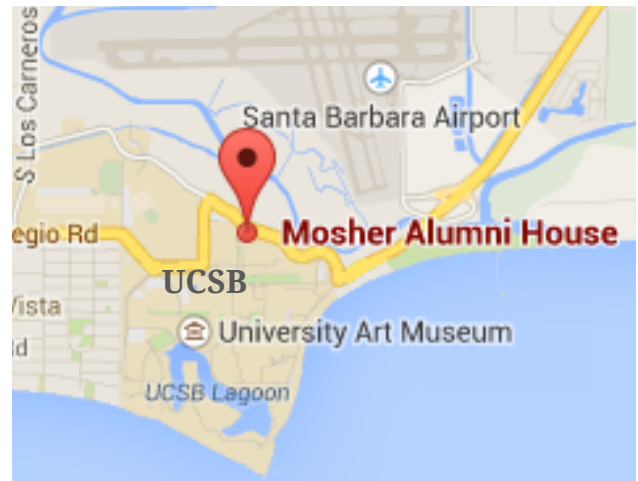
UCSB Photonics Society Spring Banquet

When:

Thursday April 24th

- Social Hour: 6:00 pm
- Dinner: 6:30 pm
- Presentations: 7:00–8:00 pm

(one free drink included with ticket)



Where:

Moshier Alumni House @ The University of California Santa Barbara
Park at University Plaza, off of Mesa Rd. Signs will be posted.

Cost:

Graduate Students: FREE

Non-Students: \$15

Catered dinner & one free drink included.

Seating is limited – Register online before **April 18th!**

Register at ips.ece.ucsb.edu

or search for “UCSB Photonics Society”