



**Prof. Yi-Jen Chiu**

● **Contact Information:**

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● **Education**

- **University of California at Santa Barbara**  
Ph.D., Electrical and Computer Engineering Graduate May 1999
- **National Taiwan University, Taipei, Taiwan**  
M. S., Electrical Engineering July 1991
- **National Cheng-Kung University, Tainan, Taiwan**  
B. S., Electrical Engineering, excellent graduated student award July 1989

● **Professional Experience**

- National Sun Yat-sen University, Kaohsiung, Taiwan  
**Vice Dean of Engineering** From August 2020 to July 2023
- Principle investigator for NSTC Si photonics project  
**Principle investigator working on hybrid interferometric fiber optical gyro (IFOG)**  
From August 2018 to July 2022
- Taiwan Photonics Society (TPS)  
**Vice chairman of TPS** From 2018 to 2021
- National Sun Yat-sen University, Kaohsiung, Taiwan  
**Chair of Department of Photonics** From August 2016 to 2018
- National Sun Yat-sen University, Kaohsiung, Taiwan

**Professor** From August 2012 to now

- National Sun Yat-sen University, Kaohsiung, Taiwan

**Associated Professor** From August 2006 to 2012

- National Sun Yat-sen University, Kaohsiung, Taiwan

**Assistant Professor** From August 2002 to 2006

- **ITRI consultant** (institute of Taiwan research industry), Taiwan From April 2003

- University of California at Santa Barbara

**Qualified tenure researcher staff** Nov. 2001 to July 2002

- Post-doctor researcher from July of 1999 to Nov. of 2001.
- Research assistant for UCSB from April of 1995 to July of 1999.

- Teaching assistant for National Taiwan University for semiconductor processing class from June of 1993 to June of 1994

## ● **Honors and Awards**

- Taiwan Photonics Society (TPS) fellow
- 2016 *Who's Who in the World*

## ● **Membership**

- IEEE / LEOS member, OSA member, APS member

## ● **Technical Experience at UCSB: September 1994 - Present**

- Design, material growth, fabrication, and testing high-speed optoelectronic devices.
- High-speed optical and electrical measurement
- Material growth (MBE growth) and characterization
- Wafer bonding for photonics device application, e.g. VCSEL, laser, and modulator.
- Semiconductor device processing.
- Principle Investigator of Si photonics for developing Gyro chip

## ● **Major Accomplishment:**

- The first demonstration of p-i-n photodetectors by combining LT-GaAs material and traveling wave structure.
- The world record of the high bandwidth (560 GHz ) photodetector for any kind of detector.
- The first demonstration of 1.55  $\mu\text{m}$  absorption and above 20 GHz bandwidth p-i-n photodetector based on GaAs material.

- High quantum efficiency of 1.55  $\mu\text{m}$  absorption n-i-n photodetectors based on GaAs material.
- Design and fabrication for Tandem electro-absorption modulator (EA-modulator).
- High saturation power ( $> 14\text{dBm}$ ) and low driving voltage ( 30 dB/V modulation, 57dB extinction ratio) operation Traveling wave electroabsorption modulator.
- Mirror growth and design for high temperature operation of long wavelength vertical-cavity-semiconductor-laser (VCSEL).
- Design and fabrication of double-fused optical and electrical pumping 1550nm and 1300 nm VCSEL.
- Optical-Switching System Measurement (  $>160$  Gbits/sec).
- Using Franze-Keldysh effect (electroabsorption) to the microwave and field-probe techniques and promote high-speed SiGe EAM in Si photonics template.
- Using novel processing ( undercut etching active region ) to enhance the high-speed performance of waveguide, high speed electroabsorption with bandwidth higher than  $60\text{ GHz}$  and also ultra-low driving voltage of  $0.6\text{ V}$  for digital-data-transmission have been demonstrated.
- Less than 10ps and 40Gb/s all optical conversion using field-driven QW structure.
- Using field-/current- driven quantum confinement in semiconductor quantum well for chirp and amplitude control
- Wafer bonding III-V/Si hybrid photonic integration, including hybrid optical waveguide spot-size converter, SLD (super luminance diode) integrated with SOI waveguide.

● **Topic of Talk:**