

Jian-Yu Lin

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Research Keywords

- Electrical and Computer Engineering
- Electronic Devices
- Microelectronics
- Ferroelectric Devices

Education

National Taiwan University (NTU)

M.S. IN ELECTRONICS ENGINEERING

- Overall GPA: 4.3/4.3
- Rank: 1/136 (1%)

Taipei, Taiwan

09/2019 - 06/2021

National Taiwan University (NTU)

B.S. IN ELECTRICAL ENGINEERING

- Overall GPA: 4.15/4.3
- Rank: 14/190 (7%)

Taipei, Taiwan

09/2015 - 06/2019

Publication

Journal

1. **Jian-Yu Lin** and Jenn-Gwo Hwu, "Enhanced Transient Behavior in MIS(p) Tunnel Diodes by Trench Forming at the Gate Edge," *IEEE Transactions on Electron Devices*, vol. 68, no. 9, pp. 4189-4194, Sept. 2021, doi: 10.1109/TED.2021.3095052. [Github link]

Conference

1. **Jian-Yu Lin** and Jenn-Gwo Hwu, "Enhanced Memory Properties in MIS TD by Forming Trench Structure at the Gate Edge," *2020 International Electronic Devices and Materials Symposium (IEDMS)*, 5021, C1-3, Chang Gung University, Tao-Yuan City, Taiwan, ROC, Oct. 2020. (oral presentation) [Github link]
2. **Jian-Yu Lin** and Jenn-Gwo Hwu, "Dependency of Transient Current Behavior on Oxide Thickness in Trench Structure MIS TDs," *2021 International Electronic Devices and Materials Symposium (IEDMS)*, 1032, C3-1, National Cheng Kung University, Tainan City, Taiwan, ROC, Nov. 2021. (oral presentation, **Best Paper Award**) [Github link]

Research Experience

Capacitance-Voltage Lab, NTU

Graduate and Undergraduate Research Assistant (with Prof. Jenn-Gwo Hwu)

Taipei, Taiwan

09/2018 - 01/2022

1. Enhanced Current Window in Trench Structure MIS Tunnel Diode (TD) with Thin Oxide (2.5 nm) (**Conference #1**)
 - Designed new device structure for MIS TDs, called **trench structure MIS TDs** (abbreviated as Trench MIS).
 - Improved current window (CW) of MIS TDs by utilizing **defects and traps** at trench structure.
 - Achieved **5 times larger CW** in Trench MIS devices compared to normal structure MIS TDs (abbreviated as Planar MIS) in long time (>10 s) voltage stress endurance measurements.
2. Enhanced Transient Current in Trench Structure MIS TD with Thick Oxide (≥ 2.8 nm)
 - Proposed that **weaker oxide electric field** in Trench MIS is the reason for enhanced transient currents.
 - Accomplished **25 times larger CW** in Trench MIS compared to that in Planar MIS devices in short time (1 ms) voltage pulse endurance measurements. (**Journal #1**)
 - Examined dependency of transient current on oxide thickness in Trench MIS. (**Conference #2**)

Quantum Electronics Lab, NTU

Undergraduate Researcher (with Prof. Jiun-Yun Li)

Taipei, Taiwan

09/2017 - 08/2018

- ◇ GeSn Band Structure Calculations using Empirical Pseudopotential Method (EPM)
 - Adopted virtual crystal approximation to adjust Sn to Ge ratios in GeSn band structure calculations.

Language

English Proficiency (TOEFL)

• Date: 2021/2/28

• Total score = 108

• R/L/S/W = 29/29/23/27

GRE

• Date: 2020/11/28

• V/Q = 158/170

• AWA = 3.5