



## Mohamadali Malakoutian

Postdoctoral Scholar, Electrical Engineering

### Bio

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#### BIO

Mohamadali is an experienced Postdoctoral researcher at Stanford University with a demonstrated history of working in high-power high-frequency transistors, all-diamond diodes, and diamond integration for thermal management, III-V wide bandgap semiconductors, integrated microsystems including MEMS/NEMS devices, and microfluidic channels. He is an expert in fab process design-integration, process and device modeling (Athena, Atlas), thin-film deposition techniques (Evaporation, Sputtering, PVD, ALD, and PECVD), dry etching (ICP/RIE etching of Diamond, AlN, SiN, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>), wet etching (bulk Si micromachining), and single-crystalline/polycrystalline diamond growth. He is currently working on the growth, fabrication, and characteristics of GaN HEMTs with diamond integrated for thermal management to solve the self-heating problem of mm-wave devices.

#### STANFORD ADVISORS

- Srabanti Chowdhury, Postdoctoral Faculty Sponsor

### Publications

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#### PUBLICATIONS

- **Development of Polycrystalline Diamond Compatible with the Latest N-Polar GaN mm-Wave Technology** *CRYSTAL GROWTH & DESIGN*  
Malakoutian, M., Ren, C., Woo, K., Li, H., Chowdhury, S.  
2021; 21 (5): 2624-2632
- **Polycrystalline diamond growth on beta-Ga<sub>2</sub>O<sub>3</sub> for thermal management** *APPLIED PHYSICS EXPRESS*  
Malakoutian, M., Song, Y., Yuan, C., Ren, C., Lundh, J., Lavelle, R. M., Brown, J. E., Snyder, D. W., Graham, S., Choi, S., Chowdhury, S.  
2021; 14 (5)
- **Analysis of mobility-limiting mechanisms of the two-dimensional hole gas on hydrogen-terminated diamond** *PHYSICAL REVIEW B*  
Peterson, R., Malakoutian, M., Xu, X., Chapin, C., Chowdhury, S., Senesky, D. G.  
2020; 102 (7)
- **Schottky Barrier Height Analysis of Diamond SPIND Using High Temperature Operation up to 873 K** *IEEE JOURNAL OF THE ELECTRON DEVICES SOCIETY*  
Malakoutian, M., Benipal, M., Koeck, F. A., Nemanich, R. J., Chowdhury, S.  
2020; 8: 614-18
- **Hydrogen-terminated diamond FET and GaN HEMT delivering CMOS inverter operation at high-temperature**  
Ren, C., Malakoutian, M., Li, S., Chowdhury, S., IEEE  
IEEE.2020
- **A Study on the First-Derivative Output Properties of GaN Static Induction Transistor with Submicrometer Fin Width** *PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS*  
Chun, J., Li, S., Malakoutian, M., Ji, D., Chowdhury, S.

2019

- **A Study on the Growth Window of Polycrystalline Diamond on Si<sub>3</sub>N<sub>4</sub>-coated N-Polar GaN CRYSTALS**

Malakoutian, M., Laurent, M. A., Chowdhury, S.

2019; 9 (10)