ANIKET SINGHA

PERSONAL DETAILS

Residential Address:	Aniket Singha, MSA-3/1, IIT Kharagpur, Kharagpur Midnapore, India PIN-721302	Phone: Email:	+91-9167482984 +91-9831783886 aniket.iitkgp@ieee.org aniket@ece.iitkgp.ac.in aniket.ece.iitkg.ac.in@gmail.com
Office Address:	Aniket Singha, Room no-A105, Department of Electronics and Electrical Comm. Engg., IIT Kharagpur, Kharagpur, West Bengal, PIN- 721302		

WORK EXPERIENCE

Dec, 2017-April 2018:	Assistant Professor in the Dept. of Electrical Engg., IIT Bhilai
May 2018 to present:	Assistant Professor in the Dept of Electronics and Electrical Communication Engg., IIT Kharagpur

EDUCATION

West Bengal Board of Secondary Education *May 2006*
Academic Program-Madhyamik (Class X)
Marks: 92.5% (Projected Rank: 45)

West Bengal Board of Higher-Secondary Education *May 2008*
Academic Program-Higher Secondary (Class XII)
Marks: 96% in Science Group (Projected rank: 28)
(Physics: 97/100, Chemistry: 92/100; Mathematics: 99/100)

Jadavpur University *May 2012*
Department of Electronics and Telecomm. Engineering
Academic Program-B.E
Overall Course C.G.P.A: 8.78/10
Marks: 82%

Indian Institute of Technology Bombay *Nov, 2017*
Department of Electrical Engineering
Academic Program-Dual Degree (M.Tech + Ph.D).
Specialization: "Microelectronics and VLSI design".
Overall Course C.G.P.A: 9.57/10

RESEARCH INTEREST

1. Systems based on spin-photon interaction.
2. 2D material and systems for spintronic devices.

3. Physics based mathematical modeling and quantum transport simulation of nanoscale devices.
4. Thermoelectric energy harversting in nanoscale devices. Thermoelectric refrigeration. Spin thermoelectrics and spin caloritronics.
5. Nuclear spin manipulation in quantum dots and quantum Hall bars for application in quantum computation.

SUBJECTS TEACHING/TAUGHT

EE1120: Digital systems design (At IIT Bhilai) Spring 2018

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EE2120: VLSI systems design (At IIT Bhilai) Spring 2018

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EC60201: Semiconductor device modeling Autumn 2018, 2019

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EC21101: Basic Electronics Spring 2019, 2020

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EC29003: Introduction to electronics laboratory Autumn 2018, 2019

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EC29001: Basic electronics Laboratory Spring 2019, 2020

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BOOK CHAPTER

After joining IIT Kharagpur:

1. Theory and modeling of spin-transfer-torque based electronic devices.
   Aniket Singha; Published in "VLSI and Post-CMOS Electronics (Volume 1): Design, modelling and simulation"; IET publications; 2019

JOURNAL PUBLICATIONS

Before joining IIT Kharagpur:

1. Exploring packaging strategies of nano-embedded thermoelectric generators.
   A. Singha, S. D. Mahanti, B. Muralidharan; AIP Advances 5 (10), 107210, 2015
2. Incoherent scattering can favorably influence energy filtering in nanostructured thermoelectrics.
   A. Singha and B. Muralidharan; Nature Scientific Reports; 7(1):7879, 2017
3. Landauer-Büttiker approach for hyperfine mediated electronic transport in the integer quantum Hall regime.
   A. Singha, M. H. Fauzi, Y. Hirayama, and B. Muralidharan; Phys. Rev. B; 95, 115416; 2017
4. Resistively-detected NMR lineshapes in a quasi-one dimensional electron system.
   M. H. Fauzi, A. Singha, M. F. Sahdan, M. Takahashi, K. Sato, K. Nagase, B. Muralidharan, Y. Hirayama; Phys. Rev. B; 95, 241404 (Rapid Comm.), 2017

After joining IIT Kharagpur:

1. Optimized Peltier refrigeration via an array of quantum dots with stair-like ground state configuration.
   Aniket Singha; Phys. Lett. A, 382 (41), 3026, 2018

2. Performance analysis of nanostructured Peltier coolers.
   Aniket Singha and Bhaskaran Muralidharan; Journal of Applied Physics, 382 (41), 3026, 2018

3. Enhanced thermoelectric performance actuated by inelastic processes in the channel region
   Aniket Singha; Physica E, 2019

CONFERENCE PUBLICATIONS

1. Analog memristive time dependent learning using discrete nanoscale RRAM devices.
   A. Singha, B. Muralidharan, B. Rajendran; 2014 International Joint Conference on Neural Networks (IJCNN), 2248-2255

CONFERENCE PRESENTATIONS

1. *A. Singha, B. Muralidharan and B. Rajendran Analog memristive time dependent learning using discrete nanoscale RRAM devices; Proceedings of IEEE; IJCNN, Beijing, China (2014)*

2. *Aniket Singha, H Fauzi, Y Hirayama, B Muralidharan; Theoretical models for hyperfine mediated electronic transport in the integer quantum Hall regime; 22nd International conference on High Magnetic Fields in Semiconductor Physics , Sapporo, Japan (2016)*

3. *Aniket Singha, M. H. Fauzi, Yoshiro Hirayama and Bhaskaran Muralidharan; Landauer-Büttiker approach for hyperfine mediated electronic transport in the integer quantum Hall regime, Deutsche Physikalische Gesellschaft, Germany (DPG spring meeting, March 2017, abstract link)*

4. *Aniket Singha and Bhaskaran Muralidharan; Role of incoherent scattering on energy filtering in nanostructured thermoelectric generators, Deutsche Physikalische Gesellschaft, Germany (DPG spring meeting, March 2017, abstract link)*

WORKSHOP PRESENTATIONS AND TALKS.

1. *Presented work on "Optimizing areal packaging strategies of nano-embedded bulk thermoelectric generator" in Indo-French workshop on "Emerging trends in electron device modeling, 2015" at IISC, Bangalore.*

2. *Gave talk on "Nano embedded thermoelectric generators: A perspective from transport theory" at International center of Theoretical Science (A TIFR initiative), Bangalore.*

3. *Presented work on "Nano embedded thermoelectric generators: A perspective from ballistic transport theory" at Harishchandra Research Institute, Allahabad.*

4. *"Invited speaker" at "VLSI design and Nanotechnology: issues and challenges", Jadavpur University ($28^{th} Nov, 2016 - 17^{th} Dec, 2016$)*

5. *Participant at "Open Quantum Systems" school (17^{th} July to 30^{th} July) organized at ICTS (A TIFR initiative), Bangalore.*

CURRENT PROJECTS (AS PI)

1. Modeling and Optimization of Spin-transport and Waste Heat Harvesting in Spin-transfer-torque based Switching Devices, ISIRD, SRIC, IIT Kharagpur
   Duration: 2019-2022, Sanctioned amount: 27.95 Lakhs

2. Atomistic to circuit modeling of 2D channel based spin logic gates, Scheme for Transformational and Advanced Research in Sciences, MHRD
   Duration: 2019-2022, Sanctioned amount: 49.5 Lakhs

PROFESSIONAL MEMBERSHIPS

1. Member IEEE (Kharagpur Section)
2. Early Career Member: American Physical Society (APS)

OTHER ACHIEVEMENTS

- Scored 92.5% (Projected Rank-45) in West Bengal Board of Secondary Education (2006).
- Chosen for scholarship by West Bengal govt. for excellence in Secondary examination (2006).
- Ranked 21^{st} out of 1.2 lakh candidates in West Bengal Joint Entrance Examination 2008.
- State Rank 140 (approx) in A.I.E.E.E 2008. AIR within top 1 percentile.
- Scored 96% (in Science group) (Projected Rank-28) in West Bengal Board of Higher Secondary Examination (2008).
- Chosen for scholarship by West Bengal govt. for excellence in Science Group (Physics, Chemistry, Mathematics) in Higher Secondary Examination (2008)
- Ranked 2^{nd} among 1.7 lakh candidates in G.A.T.E (Electronics and Telecomm. Engg. 2012).
- Granted M.H.R.D fellowship for M.Tech+Ph.D program at IIT Bombay.
- Scored C.P.I 9.57/10 in courses at Electrical Engineering, I.I.T. Bombay. Ranked 6^{th} in terms of course C.P.I among 157 post graduate and dual degree students at I.I.T Bombay.
- Awarded summer student scholarship ($June - July, 2016$) by GP-Spin Program, Japan. Internee student under Prof. Yoshiro Hirayama at Spintronics research group, Tohoku University, Japan.
- Acted as a reviewer of "PRAMANA" (Springer), "Journal of Computational Electronics (Springer)", "Scientific Reports (Nature Publishing Group)" and "Journal of Physics D: Applied Physics" (IOP Publication).

REFERENCES

Available upon request