

Curriculum Vitae

Gowrish Basavarajappa

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Current Profession

Asst. Professor, ECE Department, IIT Roorkee, India

(since September 2021)

Education Qualification

1. Ph.D. : University of Waterloo, Canada

Ph.D. at the University of Waterloo, Canada 2017 – 2021 (7th April 2021 : Viva)

IDSA – International Doctoral Student Award

Thesis: Tunable Bandpass Filters for Communication Systems , Supervisor: Prof. Raafat R. Mansour

2. M.Tech : Indian Institute of Technology Delhi, India

Master of Technology (M.Tech) - RFDT (RF Design & Technology) in CARE, 2011 – 2013

Grade (CGPA): 9.903 / 10, Project: 60 GHz NRD Guide Transceiver, Supervisors: Prof. Shibam K Koul and Prof. Ananjan Basu

3. B.E : Bangalore Institute of Technology, India

Bachelor of Engineering (B.E.) in Electronics and Communications Engineering, 2006 – 2010, Grade (Percentage): 84.82%

Professional Experience

Scientist (Communication Systems Group) at ISRO (Indian Space Research Organization) Satellite Centre

December 2014 – May 2017 (2 years, 5 months), Bangalore, India

- Band-pass filter designed with stringent specifications for Space application – Dielectric Resonator, Waveguide Resonator, Co-axial Cavity Resonator, SIW Resonator : S band (2 GHz) to Ka band (27 GHz)
- Experienced in filter design, diplexer design, simulation (3D EM : CST / HFSS), realization and testing
- Characterization of filters : corona and multi-paction
- Mono-pulse comparator at S band in RCG (Rectangular Co-axial Guide)

Systems Engineer (Wireless and RF System Design) at Cypress Semiconductor

June 2013 – September 2014 (1 year, 3 months), Bangalore, India

- Designed PCB antenna for HID (Human Interface Device) applications like Mouse, Keyboard etc
- Designed optimal matching network for BLE (Bluetooth Low Energy) radio at 2.4 GHz
- Developed collateral : Antenna Design Guide – application note

Awards / Recognition

- Member IEEE MTT-5 Filters Technical Committee
- IEEE International Microwave Symposium : Best Advanced Paper 2019, Boston
- IETE Journal Award 2018
- IETE Journal Award 2016
- IEEE International Microwave Symposium : Student Paper Finalist 2018, Philadelphia
- IDSA – International Doctoral Student Award, Uni. of Waterloo

Publications & Patent:

Text book

1. Compiled much of the material related to Microwave Oscilloscopes (Chap 8) and Wafer Probing (Chap 9) in the text book titled “**An Introduction to Microwave Measurements**” by Prof. Ananjan Basu of IIT Delhi, published by CRC Press, Taylor and Francis in 2015.

US Patents (Granted)

1. Tunable Bandpass Filter With Constant Absolute Bandwidth Using Single Tuning Element, Gowrish B. and Raafat R. Mansour, Patent application: US 16/228,587; Dec 21, 2017.
2. Tunable Filter With Minimum Variations in Absolute Bandwidth and Insertion Loss Using A Single Tuning Element, Gowrish B. and Raafat R. Mansour, Patent application: US 16/713,198; Dec 21, 2018.

Indian Patents (Applied)

1. A Scalable Balun Filter, Gowrish B., Patent Application: 202211022250, April 14, 2022.
2. Printed Circuit Board Antenna and Method of Designing Thereof, Gowrish B. and Shibhan K. Koul, Indian Patent Application: 202111052875, November 17, 2021.

Journal Publications : (Total Publications : 29, where 14 – Journals, 15 – Conferences)

1. Gowrish B. and R. R. Mansour, "An Efficient EM-Based Synthesis Technique for Single-Band and Dual-Band Waveguide Filters," accepted in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, June 2021
2. B. Gowrish and R. R. Mansour, "A Tunable Quarter-Wavelength Coaxial Filter With Constant Absolute Bandwidth Using a Single Tuning Element," in *IEEE Microwave and Wireless Components Letters*, vol. 31, no. 6, pp. 658-661, June 2021
3. B. Gowrish, S. K. Koul and R. R. Mansour, "Transversal Coupled Triple-Mode Spherical Resonator-Based Bandpass Filters," in *IEEE Microwave and Wireless Components Letters*, vol. 31, no. 4, pp. 369-372, April 2021
4. B. Gowrish and R. R. Mansour, "A Novel Bandwidth Reconfigurable Waveguide Filter for Aerospace Applications," in *IEEE Microwave and Wireless Components Letters*, vol. 30, no. 6, pp. 577-580, June 2020
5. G. Basavarajappa and R. R. Mansour, "A High-Q Quadruple-Mode Rectangular Waveguide Resonator," in *IEEE Microwave and Wireless Components Letters*, vol. 29, no. 5, pp. 324-326, May 2019
6. G. Basavarajappa and R. R. Mansour, "Design Methodology of a High-Q Tunable Coaxial Filter and Diplexer," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 67, no. 12, pp. 5005-5015, Dec. 2019
7. G. Basavarajappa and R. R. Mansour, "Design Methodology of a Tunable Waveguide Filter With a Constant Absolute Bandwidth Using a Single Tuning Element," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 66, no. 12, pp. 5632-5639, Dec. 2018
8. Gowrish. B., S. Reddy D., A. V. G. Subramanyam, V. S. Kumar and V. V. Srinivasan, "Mono-Pulse Comparator in Rectangular Co-Axial Guide for Satellite Ground Station," in *IEEE Microwave and Wireless Components Letters*, vol. 26, no. 9, pp. 666-668, Sept. 2016
9. K. Rawat, B. Gowrish, G. Ajmera, A. Basu, S.K. Koul, "Design scheme for broadband Doherty power amplifier using broadband load combiner", *Wiley International Journal of RF and Microwave Computer-Aided Engineering*, vol. 25, Issue 8, pages 655–674, Oct 2015
10. Gowrish B., Rahul Kumar & Ananjan Basu (2015) Smith Chart-based Design of a Dual Band Real Impedance Matching Network, *IETE Journal of Education*, 56:2, 43-50
11. Gowrish B. and Ananjan Basu (2017) Analysis and Design of a Dual-Band Stepped Impedance PCB Monopole Antenna, *IETE Journal of Education*, 58:1, 29-38
12. Gowrish B. & Ananjan Basu (2019) Deriving Poynting Theorem – A Student-Friendly Approach, *IETE Journal of Education*, 60:2, 91-94
13. B. Gowrish & Shibhan K. Koul (2021) Analysis of Transmission Line with Distributed Series Voltage Sources Using Green's Function, *IETE Journal of Education*, 62:1, 21-28
14. B. Gowrish & Shibhan K. Koul (2021) Designing RF and Microwave Band Pass Filters Using Coupled Resonators, *IETE Journal of Education*, 62:1, 6-11

Conference Publications : (Total Publications : 29, where 14 – Journals, 15 – Conferences)

1. Gowrish. B and R. R. Mansour, " A Tunable Quarter-wavelength Coaxial Filter With Constant Absolute Bandwidth Using a Single Tuning Element," 2021 IEEE/MTT-S International Microwave Symposium (IMS), Atlanta, GA, USA, 2021.
2. Gowrish. B and R. R. Mansour, "A Dual-Mode Frequency Reconfigurable Waveguide Filter with a Constant Frequency Spacing between Transmission Zeros," 2020 IEEE/MTT-S International Microwave Symposium (IMS), Los Angeles, CA, USA, 2020.
3. Gowrish. B. and R. R. Mansour, "A Tunable Coaxial Filter with Minimum Variations in Absolute Bandwidth and Q using a Single Tuning Element," 2019 IEEE MTT-S International Microwave Symposium (IMS), Boston, MA, USA, 2019.
4. Gowrish. B and R. R. Mansour, "A Tunable Waveguide Filter Designed with a Constant Absolute Bandwidth Using a Single Tuning Element," 2018 IEEE/MTT-S International Microwave Symposium - IMS, Philadelphia, PA, USA 2018.
5. Gowrish. B, A. B. Kiran and A. Ramaprasad, "Cluster analysis of a decade of Indian space activities based on an ontological framework," 2017 International Conference On Smart Technologies For Smart Nation (SmartTechCon), Bangalore, 2017
6. Gowrish. B and R. Kumar, "Analysis of amplitude and phase imbalances on efficiency of microwave power combiner," 2017 International Conference On Smart Technologies For Smart Nation (SmartTechCon), Bangalore, 2017
7. Gowrish. B, R. Kumar and A. Basu, "Radiation enhancement in PCB plane using novel multi-stub inverted F antenna," 2016 IEEE Annual India Conference (INDICON), Bangalore, 2016

8. D. S. Reddy, Gowrish. B, V. K. Velidi, A. V. G. Subramanyam, V. V. Srinivasan and Y. Mehta, "Virtual negative coupling in folded waveguide cavity filter for space applications," 2015 IEEE MTT-S International Microwave and RF Conference (IMaRC), Hyderabad, 2015
9. Gowrish. B, A. Basu and S. K. Koul, "Novel non radiative dielectric guide frequency tripler at 60 GHz," 2014 IEEE International Microwave and RF Conference (IMaRC), Bangalore, 2014
10. Gowrish. B and A. Basu, "Measurement based chip impedance determination on validation board," TENCON 2014 - 2014 IEEE Region 10 Conference, Bangkok, 2014
11. Gowrish. B and A. Basu, "Casing and hand effect on PCB antenna in 2.4 GHz wireless mouse: A measurement based characterization," Proceedings of 2014 3rd Asia-Pacific Conference on Antennas and Propagation, Harbin, 2014
12. Gowrish. B, D. John, D. Settu, A. Basu and S. K. Koul, "Novel mechanical reconfigurable PCB antenna for 2.4 GHz wireless consumer product: Minimizing time to market," Proceedings of 2014 3rd Asia-Pacific Conference on Antennas and Propagation, Harbin, 2014
13. Gowrish. B, A. Bhat, A. B. Kiran and K. Rawat, "Optimal finite bit Pi representation," 2014 IEEE REGION 10 SYMPOSIUM, Kuala Lumpur, 2014
14. K. Rawat et al., "Design strategy for tri-band Doherty power amplifier," WAMICON 2014, Tampa, FL, 2014
15. Gowrish. B, K. Rawat, A. Basu and S. K. Koul, "Broad-band matching network using band-pass filter with device parasitic absorption," 82nd ARFTG Microwave Measurement Conference, Columbus, OH, 2013

Skills

- Electro-Magnetics, Microwave Engineering, RF Engineering
- RF Filter design using Coupling Matrix , Mux / Diplexer, Antennas, Passive components, Signal Integrity
- Instruments: Spectrum Analyzer, Vector Network Analyzer, Microwave Oscilloscope, Power Meter
- CAD tools: CST Microwave Studio, HFSS, ADS, MATLAB

Test Scores

- **GRE** – November 2016, Quantitative Reasoning : 170 / 170 , Verbal Reasoning : 151 / 170, Analytical Writing : 3 / 6
- **TOEFL iBT** – March 2017, Reading : 29 / 30 , Listening : 29 / 30, Speaking : 23 / 30, Writing : 27 / 30, Total : 108 / 120
- **GATE** – February 2011: All India rank: 4, Percentile: 99.99 (almost 100), Score/Marks: 1000 (out of 1000), Total Students: 1,37,853
- **CET (Common Entrance Test - Karnataka)** – May 2006, Engineering rank: 592 , Medical rank: 81, Total students: 70000+

Technical Student Activities:

- Image Processing Autonomous Robotics – 1st IIT (G) – 2009
- Autonomous Robotics– 2nd NIT(K) – 2009, 1st BMSCE – 2009, 1st JSSATE – 2009

Societies

- IEEE Member (92085897) : Microwave Theory and Techniques Society , Antenna and Propagation Society

Languages

- English, Kannada, Hindi, Sanskrit

Co-curricular Activities:

- Travelling to different parts of the world & explore cultural heritage. So far, I have visited following places: Waterloo (Canada), Boston, Philadelphia (USA), Kuala Lumpur (Malaysia), Bangkok & Ayuthaya (Thailand), Leh, Andaman Nicobar Islands and Himalayan Mountains (India).

As a person I am confident, sincere & humble, who has a passion for wireless communication and desire for continuous learning and self - improvement.