

Dr.RESMI R

Assistant Professor



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<https://scholar.google.com/citations?hl=en&user=aUPOpcMAAAAJ>
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[Web of Science Researcher ID: AAU-9129-2020](#)
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[Scopus Author ID: 57190159998](#)

Qualifications:

B.Tech– Electronics Engineering (College of Engineering Adoor, CUSAT)

M.Tech – Microwave and TV Engineering (College of Engineering Trivandrum, University of Kerala)

Qualified UGC NET Exam held in 2012 December

Ph.D-Investigations on Thermoelastic Damping Effects in RF MEMS Resonators (College of Engineering Trivandrum, University of Kerala)

Professional Experience:

- Assistant Professor, LBSITW (2003 July-till date)
- Assistant Professor (adhoc), College of Engineering, Trivandrum (2000 December-2003 July)

Courses Taught:

- ✚ Internet of Things
- ✚ Data Networks
- ✚ Communication Engineering
- ✚ Industrial Instrumentation
- ✚ MEMS/NEMS
- ✚ MEMS
- ✚ Nanoelectronics
- ✚ Sensors and Transducers
- ✚ Wireless Sensor Networks
- ✚ Electrical Measurements and Measuring Instruments
- ✚ Biomedical Engineering
- ✚ Biomedical Signal Processing
- ✚ Biomedical Instrumentation
- ✚ VLSI Structures for Signal Processing
- ✚ VLSI Engineering
- ✚ VLSI Circuit Design
- ✚ VLSI Design and Systems
- ✚ Power Electronics
- ✚ Power Electronics and Instrumentation
- ✚ Industrial Electronics
- ✚ Industrial Electronics and Instrumentation
- ✚ Data Communication
- ✚ Computer Communication
- ✚ Satellite and Mobile Communication
- ✚ Analog Communication
- ✚ Antenna and Wave Propagation
- ✚ Radiation and Propagation
- ✚ Solid State Devices
- ✚ Electronic Circuits
- ✚ Basic Electronics
- ✚ Transducers and Instrumentation Lab
- ✚ Power Electronics and Instrumentation Lab
- ✚ Power Electronics Lab
- ✚ Measurements and Instrumentation Lab
- ✚ Sensors and Transducers Lab
- ✚ Industrial Electronics Lab
- ✚ Analog Integrated Circuits and Instrumentation Lab
- ✚ Analog Integrated Circuits Lab
- ✚ Electronic Devices Lab
- ✚ Electronic Circuits Lab

✚ Other Responsibilities:

- ✚ **Criteria 10 Department Coordinator** for NBA Accreditation (2022 August -till date)
- ✚ **Program Accreditation Coordinator** (AE&I) (2019-2021)

- **Curriculum Committee Member** (2019-2021) of APJ Abdul Kalam Technological University
- **PG Coordinator** (2017-2021)
- **Chief Coordinator** for conducting series exam (2008,2010-2011,2019-2020)
- **Convocation Convenor**- 2018
- **Assistant Chief Superintendent** for University Examinations (2014-2015)
- **TEQIP Coordinator** -ECE and AE&I (2010-2012)
- **Returning Officer** for conducting College Elections (2008).
- **Lab in charge** of Power Electronics Lab as well as Measurements & Instrumentation Lab (2004-till date)
- **Lab in charge** of Electronic Devices Lab (2003-2008)
- **MTech Staff Advisor** (2015-2017 MTech Signal Processing)
- **MTech Staff Advisor** (2016-2018 MTech Signal Processing)
- **MTech Staff Advisor** (2017-2019 MTech Signal Processing)
- **MTech Staff Advisor** (2018-2020 MTech Signal Processing)
- **MTech Staff Advisor** (2019-2021 MTech Signal Processing)
- **BTech Staff Advisor** (2003-2007 ECE)
- **BTech Staff Advisor** (2008-2012 ECE)
- **BTech Staff Advisor** (2012-2016 AE &I)
- **BTech Staff Advisor** (2020-2024 ECE)
- **Staff club Vice President** (2008)
- **Library Committee Member** (2005,2006,2007,2008)
- **Discipline Committee member** (2007,2008)
- **Member of Question Paper Setting and Scrutiny committee** of B.Tech courses of the University of Kerala and APJ Abdul Kalam Technological University
- **University Question Paper Setter** for MEMS (EC465), MEMS/NEMS (AE364), Biomedical Engineering(EC365), EMMI (AE303), **Sensors and Transducers (AE204) etc.**
- **Pass board member** of APJ Abdul Kalam Technological University for **Sensors and Transducers (AE204), EMMI (AE303)**
- **Internal and External examiner** for conducting exams at PG and UG level.
- **Coordinator for three days workshop** on “**Embedded Project Development**”(17-09-2015 to 19-09-2015)
- **Guided 17 MTech Thesis ,more than 35 BTech Projects, more than 40 BTech Mini Projects and more than 75 seminars at PG and UG level.**

Important Publications:

Peer Reviewed Journals

1. Resmi R, V. Suresh Babu , M. R. Baiju “Analysis of thermoelastic damping limited quality factor and critical dimensions of circular plate resonators based on axisymmetric and non-axisymmetric vibrations” AIP Advances 11, 035108 (2021); <https://doi.org/10.1063/5.0033087> (SCIE)
2. Resmi R, V. Suresh Babu , M. R. Baiju; Thermoelastic Damping Limited Quality Factor Enhancement and Energy Dissipation Analysis of Rectangular Plate Resonators Using Nonclassical Elasticity Theory, Advances in Materials Science and Engineering, vol. 2022, ArticleID 6759093, 19 pages, 2022. <https://doi.org/10.1155/2022/6759093> (SCIE)
3. Resmi, R., Babu, V.S. & Baiju, M.R. Material-dependent thermoelastic damping limited quality factor and critical length analysis with size effects of micro/nanobeams. Journal of Mechanical Science and Technology 36, 3017–3038 (2022). <https://doi.org/10.1007/s12206-022-0533-8> (SCIE)
4. Resmi R, V. Suresh Babu , M. R. Baiju “Impacts of Length-Scale Parameter on Material-Dependent Thermoelastic Damping in Micro- and Nanoplates Applying Modified Couple Stress Theory”, ISSN 1392–1207. MECHANIKA. 2022 Volume 28(3): 171–189 <http://dx.doi.org/10.5755/j02.mech.25841> (SCIE)
5. Resmi R, V. Suresh Babu , M. R. Baiju “Mitigation of Thermoelastic Energy Dissipation and Quality Factor Enhancement in Micro/Nanobeam Resonators applying Nonclassical Elasticity Theory and Structural Material Optimization” Shock and Vibration 7179266R1 (Accepted- SCIE)
6. Resmi R, V. Suresh Babu , M. R. Baiju , “Quality Factor Enhancement and Material Dependent Thermoelastic Damping Analysis in Vibrating Micro/Nanobeam Based Sensors Applying Size Effects” International Journal of Acoustics and Vibration- #1743 (Revision files under review- SCIE) .
7. Resmi R, V. Suresh Babu , M. R. Baiju “Quality Factor Enhancement by Material and Critical Length Optimizations and Thermoelastic Damping Analysis in Vibrating Micro/Nanobeam Resonators Applying Size Effects”- AOAM-D-21-00110 (Revision files under review - SCI) .
8. Resmi R., V. Suresh Babu and Baiju M.R. “Numerical Study of Thermoelastic Damping Effects on Diamond Based Beams with Plane Stress and Plane Strain Conditions Applying Nonclassical Elasticity Theory”. Advances in Dynamical Systems and Applications, 2021 16(2), pp.1371-1379.Dec.2021(Scopus Indexed)
9. Resmi R., M. R. Baiju and V. Suresh Babu “Analysis of Material Dependent Thermoelastic Damping Limited Critical Thickness in Micro/Nanobeams” Sensors and Transducers, Sensors & Transducers, Vol. 239, Issue 12, pp. 47-55, December 2019 (Scopus Indexed)
10. Resmi R, V. Suresh Babu, M.R. Baiju, Impact of dimensionless length scale parameter on material dependent thermoelastic attenuation and study of frequency shifts of rectangular microplate resonators. IOP Conf. Ser.: Mater. Sci. Eng. 1091 012067,2021 doi:10.1088/1757-899X/1091/1/012067 (Scopus Indexed)

11. Resmi R, M. R. Baiju, V. Suresh Babu “Thermoelastic damping dependent quality factor analysis of rectangular plates applying modified couple stress theory”, AIP Conference Proceedings 2166,020029 ; <https://doi.org/10.1063/1.5131616> 2019 ([Scopus Indexed](#))
12. Resmi R, V. Suresh Babu, M.R. Baiju, “Damping Analysis in Si Torsional Micromirrors”, Journal of Physics: Conference. Series. 2325 012023,2022 [doi:10.1088/17426596/2325/1/012023](https://doi.org/10.1088/17426596/2325/1/012023) ([Scopus Indexed](#))

Book Chapters

1. Resmi, R., Suresh Babu, V., Baiju, M.R. (2022). “Energy Dissipation Analysis in Micro/Nanobeam Cantilever Resonators Applying Non-classical Theory. In: Ranganathan, G., Bestak, R., Palanisamy, R., Rocha, Á. (eds) Pervasive Computing and Social Networking. Lecture Notes in Networks and Systems, vol 317. Springer, Singapore. https://doi.org/10.1007/978-981-16-5640-8_41 ([Scopus Indexed](#))
2. Resmi, R., Suresh Babu, V, Baiju, M.R. (2022). Analysis of Temperature Impacts on Material-Dependent Thermoelastic Damping in Simply Supported Rectangular Microplate Resonators Applying Size Effects. In: Pandian, A.P., Fernando, X., Haoxiang, W. (eds) Computer Networks, Big Data and IoT. Lecture Notes on Data Engineering and Communications Technologies, vol 117. Springer, Singapore. https://doi.org/10.1007/978-981-19-0898-9_48([Scopus Indexed](#))
3. Resmi, R., Suresh Babu V, Baiju, M.R. (2022) "Dimensionless Bending Rigidity Ratio and Material Dependency of Microbeams with Size Effects"Spri. Proceed. in Materials, Vol. 18, K. Geetha Gonzalez-Longatt, F.M., Wee, HM (Eds): Recent Trends in Materials https://doi.org/10.1007/978-981-19-5395-8_16 ([Scopus Indexed](#))
4. Resmi, R., Suresh Babu, V., Baiju, M.R. (2022) “Impacts of Vibration Mode Switching on Energy Dissipation Analysis of Rectangular Microplate Resonator-based Sensors in IoT Applications” In: Smys, S., Lafata, P., Palanisamy, R., Kamel, K.A. (eds) Computer Networks and Inventive Communication Technologies. Lecture Notes on Data Engineering and Communications Technologies, vol 141. Springer, Singapore. https://doi.org/10.1007/978-981-19-3035-5_59 ([Scopus Indexed](#))

Research & Consultancy:

WESAT - Women Engineered Satellite: Development of a Payload for the Comparison of Solar Radiation Intensity and UV Index Measurements in Space with respect to the Monitoring Station at the LBSITW Campus in Thiruvananthapuram City (in progress)

Patents:

Dr. Resmi R, Dr. V. Suresh Babu, Dr.M.R.Baiju,2023.Nanotechnology Based Antimicrobial Bandage Dispensing Device ,Indian Patent 378148-001,filed January 28,2023 and issued April 24,2023.

Funded Projects:

BTech Project “UV disinfection Device” is selected for financial assistance in 2023.


Membership in Professional Organizations:

- Life member ISTE
- IEEE Member

Conference/Paper Presentation/Journal Review:

Reviewer of reputed Journals-


 Reviewer of IEEE Journal of Microelectromechanical Systems (SCI-2020)


 Reviewer of Journal of Micromechanics and Micro Engineering (SCI-2021,2023)


 Reviewer of International Journal of Acoustics and Vibrations (SCIE-2021)


 Reviewer of Engineering Research Express (ESCI-2021,2022)

Reviewer of Technical papers at Conferences


 Reviewer of NCACSI-2020 [National Conference On Communication signal Processing and Instrumentation NCACSI-2020]


 Reviewer of Technical papers - NCACSI-2023 [National Conference On Communication signal Processing and Instrumentation NCACSI-2023]

 Reviewer of Technical Papers - ICCSC-23 [International Conference on Computational Systems and Communication- 2023


 Reviewer of Technical Papers – ICC2023 [International Conference on Control, Communication and Computation- 2023]


Session Chairs at Conferences


 Conference chair for Techsynoid in Mohan Das College of Engineering 2015


 Session chair for ICCSC-23 [International Conference on Computational Systems and Communication- 2023]


International Conferences papers presented:


 Resmi R, M. R. Baiju, V. Suresh Babu “Thermoelastic damping dependent quality factor analysis of rectangular plates applying modified couple stress theory”, Third International Conference on Material Science, Smart Structures and Applications (ICMSS2023), March 27-28,2023


 Resmi R., V. Suresh Babu and M. R. Baiju “Thermoelastic Energy Dissipation Trimming at High Temperatures in Cantilever Microbeam Sensors for IoT Applications” 4th International Conference on Communication and Intelligent Systems (ICCIS 2022) December 19-20, 2022 at National Institute of Technology Delhi.

 Resmi R, V. Suresh Babu, M.R. Baiju, (ICECST 2022) “Damping Analysis in Si Torsional Micromirrors” International Conference on Electronic Circuits and Signaling Technologies (ICECST 2022) 02-03, June 2022.


 Resmi R., V. Suresh Babu and M. R. Baiju, “Impacts of Vibration Mode Switching on Energy Dissipation Analysis of Rectangular Microplate Resonator Based Sensors in IoT Applications” 5th International Conference on Computer Networks and Inventive Communication Technologies (ICCNCT 2022) April 1-2,2022.

 Resmi R., V. Suresh Babu and M. R. Baiju “Dimensionless bending rigidity ratio and material dependency of microbeams with size effects,” 4th International Conference on Trends in Material Science and Inventive Materials, 2022 (ICTMIM 2022) March 24-25,2022.

 Resmi R., Suresh Babu V., M.R Baiju “Analysis of Temperature Impacts on Material Dependent Thermoelastic Damping in Simply Supported Rectangular Microplate Resonators applying Size Effects” 4th International Conference on Computer Networks, Big Data and IoT (ICCBI), December 9-10,2021.

 Resmi R.,V. Suresh Babu, M.R Baiju “Energy Dissipation Analysis in Micro/Nanobeam Cantilever Resonators Applying Non-classical Theory” Pervasive Computing and Social Networking, International Conference on Pervasive

Computing and Social Networking (ICPCSN 2021) ,March 19-20 ,2021.


-  Resmi R, V. Suresh Babu, M.R. Baiju, Impact of dimensionless length scale parameter on material dependent thermoelastic attenuation and study of frequency shifts of rectangular microplate resonators. "International Conference on Inventive Research in Material Science and Technology (ICIRMCT 2021)", January 22-23,2021 .

-  Resmi R, M. R. Baiju, V. Suresh Babu "Thermoelastic damping dependent quality factor analysis of rectangular plates applying modified couple stress theory", International Conference On Inventive Material Science Applications (ICIMA 2019), September 25-26,2019

-  Resmi R and M. R. Baiju, "Analysis of f-Q scaling in bulk acoustic wave resonators using different piezo-layers," 2017 International Conference on Inventive Communication and Computational Technologies (ICICCT-IEEE), 2017, pp. 516-521, doi: [10.1109/ICICCT.2017.7975253](https://doi.org/10.1109/ICICCT.2017.7975253)

-  Resmi R., M. R. Baiju and V. Suresh Babu, "Material dependent thermoelastic damping limited quality factor analysis of disc resonators," 2017 International Conference on Electronics, Communication and Aerospace Technology (ICECA-IEEE), 2017. pp. 675-680, doi: [10.1109/ICECA.2017.8212750](https://doi.org/10.1109/ICECA.2017.8212750)


-  Resmi R, M.R. Baiju "Analysis of Material Dependent Quality Factor in BAW Resonators" 5th Dubai International Conference on Engineering and Technology (AICET -17) Dubai, UAE 15-03-2017 Proceedings of AICET-17,Dubai pp: 85-90.












-  Resmi, R., & Baiju, M. R. (2012). Performance analysis of a tunable piezoelectric actuator based MEMS resonator. MIPRO 2012 - 35th International Convention on Information and Communication Technology, Electronics and Microelectronics - Proceedings Pages:173-178.





-  Resmi, R., & Baiju, M. R. (2011). Analysis of thermoelastic damping effects on flexural mode simple beam resonators. MIPRO 2011 - 34th International Convention on Information and Communication Technology, Electronics and Microelectronics – Proceedings Pages:156-161.

-  Resmi, R., & Baiju, M. R. (2010). Multiphysics analysis of Thermoelastic Damping Effects on RF MEMS Components, International COMSOL Conference, Bangalore,India,2014.

-  Resmi, R., & Baiju, M. R. (2010). Analysis of Thermoelastic Damping Effects on RF MEMS Components; poster presentation held at College of Engineering Trivandrum









-  Resmi, R., & Baiju, M. R. (2010) Analysis of Thermoelastic Damping Effects on RF MEMS Resonators, International Conference on Technological Trends, College of Engineering, Trivandrum, Appears in ICTT 2010 ECE/AE Papers;ECMW09.pdf
-  Gayathri, K. S., & Resmi, R. (2018). Q Factor Enhancement of Baw Resonator Using Electrode Optimization. Proceedings of the 2nd International Conference on Trends in Electronics and Informatics, IEEE ICOEI 2018. <https://doi.org/10.1109/ICOEI.2018.8553812>
-  Ameena, A., & Resmi, R. (2018). Electrode Optimization for Enhancement of Q-Factor in SAW Resonators. Proceedings of the 2nd International Conference on Trends in Electronics and Informatics, IEEE ICOEI 2018. <https://doi.org/10.1109/ICOEI.2018.8553824>
-  Sana Mol, & Resmi, R. (2018). Anchor loss limited Q factor analysis of disk resonator for varying disk geometry. 2017 International Conference on Intelligent Computing, Instrumentation and Control Technologies, ICICICT 2017, 2018-Janua. <https://doi.org/10.1109/ICICICT1.2017.8342710>
-  Ligin Alphonsa, & Resmi, R. (2018). S parameter analysis of split ring resonator for varying slit widths. 2017 International Conference on Intelligent Computing, Instrumentation and Control Technologies, ICICICT 2017, 2018-Janua. <https://doi.org/10.1109/ICICICT1.2017.8342706>
-  Sana Mol & Resmi, R. (2017). Anchor loss limited Q factor analysis of disk resonator at UHF using various materials. Proceedings of IEEE International Conference on Circuit, Power and Computing Technologies, ICCPCT 2017. <https://doi.org/10.1109/ICCPCT.2017.8074199>
-  Ligin Alphonsa & Resmi, R. (2017). S parameter analysis of split ring resonator for various substrate materials. Proceedings of IEEE International Conference on Circuit, Power and Computing Technologies, ICCPCT 2017. <https://doi.org/10.1109/ICCPCT.2017.8074194>
-  Sana Mol & Resmi, R. (2017). A review on the performance parameters of disk resonators. 2016 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2016. <https://doi.org/10.1109/ICCICCT.2016.7987983>
-  Ligin Alphonsa., & Resmi, R. (2017). Performance metrics comparison of various image segmentation methods. 2016 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2016. <https://doi.org/10.1109/ICCICCT.2016.7987984>
-  Anoushka Kumar A., & Resmi, R. (2017). Analysis of squeeze film air damping in fixed-fixed beam RF MEMS switches. 2016 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2016. <https://doi.org/10.1109/ICCICCT.2016.7988003>

-  Sharon Finny S., & Resmi, R. (2017). Quality factor and eigen frequency analysis of micromirrors. 2016 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2016. <https://doi.org/10.1109/ICCICCT.2016.7988032>
-  Sharon Finny S., & Resmi, R. (2017). Material and geometry optimization for squeeze film damping in a micromirror. Proceedings of IEEE International Conference on Emerging Technological Trends in Computing, Communications and Electrical Engineering, ICETT 2016. <https://doi.org/10.1109/ICETT.2016.7873698>
-  Aswathy, R. P., & Resmi, R. (2016). Analysis of the effects of substrate parameters on the performance of RF MEMS tunable microstrip bandpass filters. 2015 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2015. <https://doi.org/10.1109/ICCICCT.2015.7475248>
-  Linsa, M. L., & Resmi, R. (2016). Analysis of variable substrate properties effects on electric field distribution in MEMS EVA tunable filters. 2015 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2015. 9
-  Arathy, U. S., & Resmi, R. (2016). Analysis of pull-in voltage of MEMS switches based on material properties and structural parameters. 2015 International Conference on Control Instrumentation Communication and Computational Technologies, ICCICCT 2015. <https://doi.org/10.1109/ICCICCT.2015.7475249>
-  Sharon Finny S., & Resmi, R. (2016). Analysis of squeeze film damping in piston mode micromirrors. Proceedings of the International Conference on Inventive Computation Technologies, ICICT 2016, 2016. <https://doi.org/10.1109/INVENTIVE.2016.7830210>
-  Seena S Das, & Resmi, R. (2014). A Novel Cryptography Based on AES algorithm, National Conference on Emerging Technologies (NCET 2014) , Government Engineering College, BartonHill
-  Anaswara Mohan S., & Resmi, R. (2014). Detection and Segmentation of Moving Objects in Video, National Conference on Emerging Technologies(NCET 2014) , Government Engineering College, BartonHill.
-  Aswathy, B. G., & Resmi, R. (2014) High Speed RSA Public Key Cryptosystem, National Conference on Emerging Technologies (NCET 2014) , Government Engineering College, BartonHill
-  Rubayya, R. S., & Resmi, R. (2014) Memory Optimization of HMAC/SHA-2 Encryption, National Conference on Emerging Technologies(NCET 2014) , Government Engineering College, BartonHill
-  Anaswara Mohan S., & Resmi, R. (2014). Video image processing for moving object detection and segmentation using background subtraction. 2014 1st International Conference on Computational Systems and Communications, ICCSC 2014. <https://doi.org/10.1109/COMPSC.2014.7032664>

-  Rubayya, R. S., & Resmi, R. (2014). Memory optimization of HMAC/SHA-2 encryption. 2014 1st International Conference on Computational Systems and Communications, ICCSC 2014. <https://doi.org/10.1109/COMPSC.2014.7032663>
-  Aswathy, B. G., & Resmi, R. (2014). Modified RSA public key algorithm. 2014 1st International Conference on Computational Systems and Communications, ICCSC 2014. <https://doi.org/10.1109/COMPSC.2014.7032657>
-  Seena S Das, & Resmi, R. (2014). An efficient VLSI implementation of AES encryption using ROM submodules and exclusion of Shiftrows. 2014 1st International Conference on Computational Systems and Communications, ICCSC 2014. <https://doi.org/10.1109/COMPSC.2014.7032656>
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FDPs attended recently:

Attended various Faculty Development Programs as listed below.

-  Scope of Electronics Engineers in Post Pandemic Situation (2020)
-  Use of Technology for NAAC Accreditation Process (2020)
-  FDP on Outcome Based Education (2020)
-  Normal post COVID Opportunities in Electronic Industry (2020)
-  Applied Deep Learning for Medical Data Analysis (2020)
-  Research Trends in Optics, Photonics and Nano-Technology (2020)
-  Normal post COVID Opportunities in Electronic Industry (2020)
-  Applied Deep Learning for Medical Data Analysis (2020)