Dr. Ravibabu Mulaveesala

Head of the Department,

Department of Electrical Engineering,

Indian Institute of Technology Ropar,

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Personal Information

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Educational Qualifications

Ph.D., (InfraRed Imaging**)** (2007)

Centre for Applied Research in Electronics, Indian Institute of Technology Delhi, New Delhi, India.

M. Tech., (2000)

National Institute of Technology Trichurapalli, Tamil Nadu, India.

Research Interests

- Sensing and Imaging for Industrial Quality Control
- Signal and Video Processing Techniques for Industrial Imaging
- Infrared Imaging
- Non-destructive Testing & Evaluation

Research and Academic Experience

- **Visiting Research Fellow, Chiba University, Japan.**
- **Assistant Professor (July 2007 to 29th June 2010),**

Indian Institute of Information Technology, Design & Manufacturing Jabalpur.

- **Associate Professor (July 2010 to 29th Jan 2012),**

Indian Institute of Information Technology, Design & Manufacturing Jabalpur.

Associate Professor (Presently Working),

Department of Electrical Engineering, Indian Institute of Technology Ropar.

Editorial Board Member to Peer Reviewed Journals (selected):

- Editor: Measurement Science and Technology (Institute of Physics). {Indexed: Web of Science & Scopus}
- Editor: IOP SciNotes (Institute of Physics).
- Associate Editor: IEEE Sensors Journal (Institute of Electrical and Electronics Engineers). {Indexed: Web of Science & Scopus}
- Associate Editor: IEEE Access (Institute of Electrical and Electronics Engineers). {Indexed: Web of Science & Scopus}
- Associate Editor: IET Science, Measurement & Technology.{Indexed: Web of Science & Scopus}
- Associate Editor: IET Electronics Letters.{Indexed: Web of Science & Scopus}
- Associate Editor: Journal of Sensors and Sensor Systems.{Indexed: Web of Science & Scopus}
- Associate Editor: Heliyon Journal (Elsevier). {Indexed: Web of Science & Scopus} (20th Oct 2016 - 5th July 2019)
- Editor: Measurement: Sensors (Elsevier).
- Editor: Journal of Non destructive Testing & Evaluation.

Sponsored Research Grants:

External Sponsored Research Grants* (From Last Five Years):

S.No	Title	Sponsoring Agency	Period	Approximate Amount (INR)
1	Matched filter approach for chirp excited infrared imaging for non-destructive characterization.	Science & Engineering Research Board (SERB)	2014-2017	46,000,00.00/-
2	Non-destructive testing of Carbon Fibre Reinforced Polymers (CFRP) using non-stationary thermal Imaging technique.	Ministry of Defense (AR&DB)	2014-2017	22,000,00.00/-
3	Depth resolution and sizing studies in Thermal Wave Detection And Ranging (TWDAR).	Science & Engineering Research Board (SERB)	2014-2016	30,000,00.00/-
4	The development of a portable THERMOgraphy-based health deTECTion system (THERMOTECT) In breast cancer	Global Innovation & Technology Alliance	2017-2019	760,000,00.00/-

	screening.			

*As as PI/Co-PI/Partner

Total Budget (Externally Funded Projects @ IRIL, IIT Ropar as PI/Partner/Co-PI): 836 Lakhs (Indian Rupees)

Administrative Experience

Member, Academic Senate, IIITDM Jabalpur

Co-ordinator, Science and Technology, IIITDM Jabalpur (2007-2008)

Convener, B.Tech Project Evaluation Committee, IIITDM Jabalpur (2008-2010)

Mess Warden, Hall 1, IIITDM Jabalpur (2008-2009)

Library ECE Co-ordinator, IIITDM Jabalpur (2008-2010)

Convener, B.Tech Medals and Prizes Selection Committee, IIITDM Jabalpur (2008-2009)

Co-ordinator, REPC, IIT Ropar (2012-2013)

Co-ordinator, ACUGS, IIT Ropar (2013-2014)

Co-ordinator, EED Time Table Incharge, IIT Ropar (2012-2013)

Courses Taught

Sensing: Methods, Devices and Applications (UG)

Optical Electronics and Optical Communications (UG)

Measurement Science and Technology (PG)

Industrial Imaging Techniques (PG)

Analog Electronics (UG)

Measurements and Instrumentation (UG)

Sensors & Mechatronics (UG)

Non-destructive Testing and Evaluation (UG&PG)

Research Laboratory Establishment

InfraRed Imaging Laboratory(IRIL), IIITDM Jabalpur

InfraRed Imaging Laboratory(IRIL), IIT Ropar

PhD Thesis Guidance

1. Dr. Ghali Venkata Subbarao (2012 @ IIITDM Jabalpur)
2. Dr. Vanita Arora (2016 @ IIT Ropar)
3. Dr. Juned S M (2017 @ IIITDM Jabalpur) Co-supervised by Dr. M. Amarnath
4. Dr. Geetika Dua (2018 @ IIT Ropar)

M.Tech Thesis Guidance

Mr. M. Manupuran Co-supervised by Dr. M. Amarnath

Ms. Pooja Dubey

Ms. Ankita

Post Doctoral Researchers:

Dr. Vanita Arora, Post-Doctoral Fellow.

Patent

1. A system and method for non-destructive characterization in solids and composites; Patent Number: 294805 (Granted).

2. Thermal imaging for identifying a defect in a material, Application no. 201911012086, LRN no: P3591-IN, 27/03/2019.

3. US Patent Application Number.: 16/830,131, Date of Filing: 25 March 2020.

Selected Publications in Refereed International Journals (Science Citation Index/Science Citation Index Expanded/Emerging Sources Citation Index/Scopus Index Journals)

4. Kaur, K., **Mulaveesala, R.**, and Mishra, P., Constrained autoencoder based pulse compressed thermal wave imaging for sub-surface defect detection (2021) *IEEE Sensors Journal*, (accepted).
5. Dua, G., Arora, V., and **Mulaveesala, R.**, Defect detection capabilities of pulse compression based infrared non-destructive testing and evaluation (2020) *IEEE Sensors Journal*, (In Press). DOI: 10.1109/JSEN.2020.3046320
6. Sharma, A., **Mulaveesala, R.**, Dua, G., Arora, V., and Kumar, N., Digitized frequency modulated thermal wave imaging for detection and estimation of osteoporosis (2020) *IEEE Sensors Journal*, (In Press). DOI: 10.1109/JSEN.2020.3043282
7. Rani, A., **Mulaveesala, R.**, and Kher, V., An analytical approach for frequency modulated thermal wave imaging for testing and evaluation of glass fiber reinforced polymers (2021) *IOP SciNotes* (accepted).
8. **Mulaveesala, R.**, Arora, V., and Dua, G., Pulse compression favorable thermal wave imaging techniques for non-destructive testing and evaluation of materials (2020) *IEEE Sensors Journal*, (In Press) (Invited Paper). DOI: 10.1109/JSEN.2020.3034823
9. Kher, V., **Mulaveesala, R.** Probability of defect detection in glass fibre reinforced polymers using pulse compression favourable frequency modulated thermal wave imaging(2021) *Infrared Physics and Technology*, 113, art. no. 103616.
10. Sharma, A., **Mulaveesala, R.**, Arora, V. Novel Analytical Approach for Estimation of Thermal Diffusivity and Effusivity for Detection of Osteoporosis (2020) *IEEE Sensors Journal*, 20 (11), art. no. 8998228, pp. 6046-6054.
11. Siddiqui, J. A., Patil, S., Chouhan, S. S., Wuriti, S., Arora., V. and **Mulaveesala, R.**, An efficient pulse compression favourable thermal

excitation scheme for non-destructive testing using infrared thermography (2020) *Electronics Letters*, (In Press).

12. Rani, A., and **Mulaveesala, R**., Depth resolved pulse compression favourable frequency modulated thermal wave imaging for quantitative characterization of glass fibre reinforced polymer (2020) *Infrared Physics and Technology*, (In Press).
13. Rani, A. and **Mulaveesala, R**., Investigations on pulse compression favourable thermal imaging approaches for characterization of glass fibre reinforce polymers (2020) *Electronics Letters*, (In Press).
14. Arora, V., **Mulaveesala, R**., Dua, G., Sharma, A. Thermal non-destructive testing and evaluation for subsurface slag detection: Numerical modeling (2020) *Insight: Non-Destructive Testing and Condition Monitoring*, 62 (5), pp. 264-268.
15. Kher, V. and **Mulaveesala, R**., Probability of defect detection in pulse compression favourable thermal excitation schemes for infra-red non-destructive testing (2020) *Electronics Letters*, (In Press).
16. Ahmad, J., Akula, A., **Mulaveesala, R.,** and Sardana, H.K., Probability of detecting the deep defects in steel sample using frequency modulated independent component thermography (2020) *IEEE Sensors Journal*, (accepted).
17. Kaur, K. and **Mulaveesala, R**., An efficient selection of independent components for inspection of mild steel sample using infrared thermography (2020) *Electronics Letters*, (In Press).
18. Sharma, A., **Mulaveesala, R**., Dua, G., and Kumar, N., Linear frequency modulated thermal wave imaging for estimation of osteoporosis: An analytical approach (2020) *Electronics Letters*, (In Press).
19. Ahmad, J., Akula, A., **Mulaveesala, R**., and Sardana, H.K., Probability of detection of deep defects in steel samples using Barker coded independent component thermography (2020) *Electronics Letters*, (In Press).
20. Kaur, K., Sharma, A., Rani, A., Kher, V., **Mulaveesala, R**. Physical insights into principal component thermography (2020) *Insight: Non-Destructive Testing and Condition Monitoring*, 62 (5), pp. 277-291.
21. Ahmad, J., Akula, A., **Mulaveesala, R**., Sardana, H.K. Defect detection capabilities of independent component analysis for Barker coded thermal wave imaging (2020) *Infrared Physics and Technology*, 104, art. no. 103118.
22. Kaur, K., **Mulaveesala, R**. An efficient data processing approach for frequency modulated thermal wave imaging for inspection of steel material (2019) *Infrared Physics and Technology*, 103, art. no. 103083.
23. Sharma, A., Dua, G., **Mulaveesala, R**. Breast cancer detection using frequency modulated thermal wave imaging (2019) *Imaging Science Journal*, 67 (7), pp. 396-406.
24. Kher, V., **Mulaveesala, R**. Probability of defect detection in pulse compression favourable frequency modulated thermal wave imaging (2019) *Electronics Letters*, 55 (14), pp. 789-791.
25. **Mulaveesala, R**., Arora, V., Rani, A. Coded thermal wave imaging technique for infrared non-destructive testing and evaluation (2019) *Nondestructive Testing and Evaluation*, 34 (3), pp. 243-253.

26. Dua, G., **Mulaveesala, R.**, Kher, V., Rani, A. Gaussian windowed frequency modulated thermal wave imaging for non-destructive testing and evaluation of carbon fibre reinforced polymers (2019) *Infrared Physics and Technology*, 98, pp. 125-131.
27. Kaur, K., **Mulaveesala, R**. Experimental investigation on noise rejection capabilities of pulse compression favourable frequency-modulated thermal wave imaging (2019) *Electronics Letters*, 55 (6), pp. 352-353.
28. Ahmad, J., Akula, A., **Mulaveesala, R.**, Sardana, H.K. Barker-Coded Thermal Wave Imaging for Non-Destructive Testing and Evaluation of Steel Material (2019) *IEEE Sensors Journal*, 19 (2), art. no. 8502804, pp. 735-742.
29. Arora, V., **Mulaveesala, R.**, Rani, A., Sharma, A. Digitised Frequency Modulated Thermal Wave Imaging for Non-destructive Testing and Evaluation of Glass Fibre Reinforced Polymers (2019) *Nondestructive Testing and Evaluation*, 34 (1), pp. 23-32.
30. Dua, G., **Mulaveesala, R**. Thermal wave imaging for non-destructive testing and evaluation of reinforced concrete structures (2018) *Insight: Non-Destructive Testing and Condition Monitoring*, 60 (5), pp. 252-256.
31. Dua, G., **Mulaveesala, R**. Applicability of active infrared thermography for screening of human breast: A numerical study (2018) *Journal of Biomedical Optics*, 23 (3), art. no. 037001, .
32. Suresh, B., Subhani, Sk., Ghali, V.S., **Mulaveesala, R**. Subsurface detail fusion for anomaly detection in non-stationary thermal wave imaging (2017) *Insight: Non-Destructive Testing and Condition Monitoring*, 59 (10), pp. 553-558.
33. Arora, V., **Mulaveesala, R**. Application of golay complementary coded excitation schemes for non-destructive testing of sandwich structures (2017) *Optics and Lasers in Engineering*, 93, pp. 36-39.
34. Dua, G., **Mulaveesala, R**. Infrared thermography for detection and evaluation of bone density variations by non-stationary thermal wave imaging (2017) *Biomedical Physics and Engineering Express*, 3 (1), art. no. 017006, .
35. **Mulaveesala, R.**, Arora, V. Complementary coded thermal wave imaging scheme for thermal non-destructive testing and evaluation (2017) *Quantitative InfraRed Thermography Journal*, 14 (1), pp. 44-53.
36. **Mulaveesala, R.**, Dua, G. Non-invasive and non-ionizing depth resolved infra-red imaging for detection and evaluation of breast cancer: A numerical study (2016) *Biomedical Physics and Engineering Express*, 2 (5), art. no. 055004, .
37. Arora, V., **Mulaveesala, R.**, Bison, P. Effect of Spectral Reshaping on Frequency Modulated Thermal Wave Imaging for Non-destructive Testing and Evaluation of Steel Material (2016) *Journal of Nondestructive Evaluation*, 35 (1), art. no. 15, pp. 1-7.
38. Siddiqui, J.A., Arora, V., **Mulaveesala, R.**, Muniyappa, A. Infrared Thermal Wave Imaging for Nondestructive Testing of Fibre Reinforced Polymers (2015) *Experimental Mechanics*, 55 (7), pp. 1239-1245.
39. Bhowmik, A., Repaka, R., **Mulaveesala, R.**, Mishra, S.C. Suitability of frequency modulated thermal wave imaging for skin cancer detection-A

theoretical prediction (2015) *Journal of Thermal Biology*, 51, pp. 65-82.

40. Dua, G., **Mulaveesala, R.**, Siddique, J.A. Effect of spectral shaping on defect detection in frequency modulated thermal wave imaging (2015) *Journal of Optics* (United Kingdom), 17 (2), art. no. 025604.
41. Arora, V., Siddiqui, J.A., **Mulaveesala, R.**, Muniyappa, A. Pulse compression approach to nonstationary infrared thermal wave imaging for nondestructive testing of carbon fiber reinforced polymers (2015) *IEEE Sensors Journal*, 15 (2), art. no. 6936841, pp. 663-664.
42. Siddiqui, J.A., Arora, V., **Mulaveesala, R.**, Muniyappa, A. Modelling of the frequency modulated thermal wave imaging process through the finite element method for non-destructive testing of a mild steel sample (2015) *Insight: Non-Destructive Testing and Condition Monitoring*, 57 (5), pp. 266-268.
43. Arora, V., **Mulaveesala, R.**, Siddiqui, J.A., Muniyappa, A. Hilbert transform-based pulse compression approach to infrared thermal wave imaging for sub-surface defect detection in steel material (2014) *Insight: Non-Destructive Testing and Condition Monitoring*, 56 (10), pp. 550-552.
44. Arora, V., **Mulaveesala, R**. Pulse compression with Gaussian weighted chirp modulated excitation for infrared thermal wave imaging (2014) *Progress in Electromagnetics Research Letters*, 44, pp. 133-137.
45. Dua, G., **Mulaveesala, R**. Applications of Barker coded infrared imaging method for characterisation of glass fibre reinforced plastic materials (2013) *Electronics Letters*, 49 (17), pp. 1071-1073.
46. **Mulaveesala, R.**, Ghali, V.S., Arora, V. Applications of non-stationary thermal wave imaging methods for characterisation of fibre-reinforced plastic materials (2013) *Electronics Letters*, 49 (2), pp. 118-119.
47. Subbarao, G.V., **Mulaveesala, R**. Quadratic frequency modulated thermal wave imaging for non-destructive testing (2012) *Progress In Electromagnetics Research M*, 26, pp. 11-22.
48. **Mulaveesala, R.**, Panda, S.S.B., Mude, R.N., Amarnath, M. Non-destructive evaluation of concrete structures by non-stationary thermalwave imaging (2012) *Progress in Electromagnetics Research Letters*, 32, pp. 39-48.
49. Ghali, V.S., Panda, S.S.B., **Mulaveesala, R**. Barker coded thermal wave imaging for defect detection in carbon fbre-reinforced plastics (2011) *Insight: Non-Destructive Testing and Condition Monitoring*, 53 (11), pp. 621-624.
50. Ghali, V.S., **Mulaveesala, R**. Comparative data processing approaches for thermal wave imaging techniques for non-destructive testing (2011) *Sensing and Imaging*, 12 (1-2), pp. 15-33.
51. **Mulaveesala, R.**, Venkata Ghali, S. Coded excitation for infrared non-destructive testing of carbon fiber reinforced plastics (2011) *Review of Scientific Instruments*, 82 (5), art. no. 054902, .
52. **Mulaveesala, R.**, Ghali, V.S. Cross-correlation-based approach for thermal non-destructive characterisation of carbon fibre reinforced plastics (2011) *Insight: Non-Destructive Testing and Condition Monitoring*, 53 (1), pp. 34-36.
53. Ghali, V.S., **Mulaveesala, R.**, Takei, M. Frequency-modulated thermal

wave imaging for non-destructive testing of carbon fiber-reinforced plastic materials (2011) *Measurement Science and Technology*, 22 (10), art. no. 104018.

54. Ghali, V.S., **Mulaveesala, R**. Frequency modulated thermal wave imaging techniques for non-destructive testing (2010) Insight: Non-Destructive Testing and Condition Monitoring, 52 (9), pp. 475-480.
55. Ghali, V.S., Jonnalagadda, N., **Mulaveesala, R**. Three-dimensional pulse compression for infrared nondestructive testing (2009) *IEEE Sensors Journal*, 9 (7), pp. 832-833.
56. **Mulaveesala, R**., Vaddi, J.S., Singh, P. Pulse compression approach to infrared nondestructive characterization (2008) *Review of Scientific Instruments*, 79 (9), art. no. 094901, . Cited 77 times.
57. **Mulaveesala, R**., Awasthi, S., Tuli, S. Infrared non-destructive characterization of boiler tube (2008) *Sensor Letters*, 6 (2), pp. 312-318.
58. **Mulaveesala, R**., Tuli, S. Theory of frequency modulated thermal wave imaging for nondestructive subsurface defect detection (2006) *Applied Physics Letters*, 89 (19), art. no. 191913, .
59. **Mulaveesala, R**., Pal, P., Tuli, S. Interface study of bonded wafers by digitized linear frequency modulated thermal wave imaging (2006) Sensors and Actuators, A: Physical, 128 (1), pp. 209-216.
60. **Mulaveesala, R**., Tuli, S. Digitized frequency modulated thermal wave imaging for nondestructive testing (2005) *Materials Evaluation*, 63 (10), pp. 1046-1050.
61. **Mulaveesala, R**., Tuli, S. Implementation of frequency-modulated thermal wave imaging for non destructive sub-surface defect detection (2005) *Insight: Non-Destructive Testing and Condition Monitoring*, 47 (4), pp. 206-208.
62. Tuli, S., **Mulaveesala, R**. Defect detection by pulse compression in frequency modulated thermal wave imaging (2005) *Quantitative InfraRed Thermography Journal*, 2 (1), pp. 41-54.

Selected Publications in Peer Reviewed International Conferences

63. **Mulaveesala R** and Tuli S, Electro-thermal modeling and Matlab-Simulink simulation of lock-in thermography for non-destructive characterization,16th WCNDT Proceedings(2004), Canada, pp. 170.
64. Tuli S and **Mulaveesala R**, Frequency-modulated wave thermography for non-destructive testing, QIRT Proceedings(2004), Brussel, pp. H.6.1-6.6.
65. **Mulaveesala R** and Tuli, S., "Phase sensitive digitized frequency modulated thermal wave imaging and pulse compression for NDE applications," Proceedings of SPIE(2006), Vol. 6205, 620515.
66. Awasthi, S., **Mulaveesala R** and Tuli, S., "Thermal nondestructive evaluation of scaling in boiler tubes," Proceedings of SPIE(2007), Vol. 6541, 654114.
67. **Mulaveesala R** and Takei M, Modeling and simulation for frequency modulated thermal wave imaging for non destructive testing, WCIPT Proceedings (2010), Sept. 6–9, 2010, Beijing (China).

68. Ghali V S, **Mulaveesala R** and Takei M, Cross-correlation based compression technique for frequency modulated thermal wave imaging, *QIRT Proceedings*(2010), Quebec, Canada (2010),p-129.

69. Amarnath M, **Mulaveesala R,** Subbarao G. V. and Prasanna Kumar V Sai, Application of infrared imaging for subsurface sensing of glass fiber reinforced plastic materials, PFAM–XIX proceedings, 14 -17 (2011), Auckland, New Zealand.

70. **Mulaveesala, R.,** Subbarao, V, Ghali., Lokendra, K, Balyan and, Subir, S, Lamba., Signal and image processing techniques for digitized frequency modulated thermal-wave imaging for characterization of fiber-reinforced plastics", Proc. SPIE 8013, 80130R (2011). doi:10.1117/12.882047.

71. **Mulaveesala, R.,** V.S. Ghali., and Amarnath M., Matched excitation for thermal nondestructive testing of carbon fiber reinforced plastic materials, Proc. SPIE, 8354-7 (2012).

72. **Mulaveesala, R.,** Venkata Nagarjuna P., Dadda Ravi and Amarnath M., Non-stationary thermal wave imaging techniques for inspection of wooden materials , Proc. SPIE, 8354-11 (2012).

73. **Mulaveesala, R.,** Juned A. Siddiqui., V. Arora., V.S. Ghali and Amarnath M., Nondestructive testing and evaluation of composites by non-invasive IR Imaging techniques, Proc. SPIE, 8705-33 (2013).

74. **Mulaveesala, R.,** V.S. Ghali., V. Arora., Juned A. Siddiqui and Amarnath M., Theory, modeling, and simulations for thermal wave detection and ranging, Proc. SPIE, 8705-34 (2013).

75. **Mulaveesala, R.,** V.S. Ghali., V. Arora., Juned A. Siddiqui and Amarnath M., Recent advances in thermal wave detection and ranging for non-destructive testing and evaluation of materials, Proc. SPIE, 8705-35 (2013).

76. Akula, A., **R. Mulaveesala**., S. Kumar., S. Tewary., H. K. Sardana., and R. Ghosh., Pulse Compression Approach for frequency modulated thermal wave imaging based subsurface defect analysis, Proc. APCNDT, CP-217, (2013).

77. S. Tewary.,, A. Akula., R. Ghosh., **R. Mulaveesala**., S. Kumar., and H. K. Sardana, Detection of subsurface defects using active infrared thermography, Proc. APCNDT, CP-250, (2013).

78. Ghali V.S., S. Subhani., and **R. Mulaveesala**., Applications of feature separation based subsurface analysis for frequency modulated thermal wave imaging, Proc. APCNDT, CP-65, (2013).

79. **R. Mulaveesala**., Non-Stationary Thermal Wave Imaging for Non-Destructive Testing and Evaluation, Proc. APCNDT, (2013) (Invited).

80. **Mulaveesala, R.,** V. Arora., Juned A. Siddiqui., and Amarnath M., Numerical approach to binary complementary Golay coded infrared thermal wave imaging, Proc. SPIE, 9105- 91050T,(2014).

81. **Mulaveesala, R.,** Juned A. Siddiqui., V. Arora., and Amarnath M.,

Nonstationary thermal wave imaging for nondestructive testing and evaluation, Proc. SPIE, 9105, 91050R,(2014).

82. **Mulaveesala, R.,** V.S. Ghali., V. Arora., Juned A. Siddiqui and Amarnath M., Pulse compression approach to digitized frequency modulated infrared imaging for nondestructive testing of carbon fibre reinforced polymers, Proc. SPIE, 9105, 91050M,(2014).

83. Dua, G., Ghali, V.S., **Mulaveesala, R.,** "Testing and evaluation of glass fiber reinforced polymers by thermal wave imaging," IEEE international conferences on Signal Processing And Communication Engineering Systems (SPACES)-2015, 2nd-3rd Jan. 2015, PP. 527-530, (2015).

84. Arora, V., **Mulaveesala, R.,** Ghali , V. S., "Non-destructive testing of steel sample by non-stationary thermal wave imaging," IEEE international conferences on Signal Processing And Communication Engineering Systems (SPACES)-2015, 2nd-3rd Jan. 2015, PP. 527-530, (2015).

85. **Mulaveesala, R.,** Juned A. Siddiqui., V. Arora., G. Dua., Ghali , V. S., and Amarnath M., Testing and evaluation of concrete structures by thermal wave imaging, Proc. SPIE, 9485-18, (2015).

86. **Mulaveesala, R.,** V. Arora., Juned A. Siddiqui., Ghali , V. S., and Amarnath M., Signal and image processing techniques for testing and evaluation of glass fibre reinforced polymers, Proc. SPIE, 9485-32, (2015).

87. **Mulaveesala, R.,** G. Dua., Juned A. Siddiqui., Ghali , V. S., and Amarnath M., A numerical approach for testing and evaluation of mild steel material by thermal wave imaging, Proc. SPIE, 9485-36,(2015).

88. Arora., V., and **Mulaveesala, R**., Complimentary Coded Thermal Wave Imaging Scheme for Thermal Non-Destructive Testing and Evaluation, QIRT Asia-2015, (2015).

89. Siddiqui, J. A., Arora., V., **Mulaveesala, R**., Ghali, V. S., and Muniyappa, A., Non-Destructive Testing and Evaluation by Thermal Wave Detection and Ranging, QIRT Asia-2015, (2015).

90. Dua, G., and **Mulaveesala, R**., Advances in Non-Stationary Frequency Modulated Thermal Wave Imaging for Non-Destructive Testing and Evaluation, QIRT Asia-2015, (2015).

Membership in Professional Bodies

- Life Member of Indian Society for Non-destructive Testing
- Life Member of Thermo-physical Society of India

Awards, Honors and Prizes (selected)

- Institute Level Best Project (Postgraduate Level) Award for Open House-I² Tech 2006 (IIT Delhi Alumni Award).
- Referee to European Research Council Starting Grants (Physical

Sciences and Engineering).

- Expert Committee Member for Innovation Fund Competition of Canada Foundation for Innovation (CFI).
- Referee to Indo-French Centre for the Promotion of Advanced Research (IFCPAR/ CEFIPRA)
- Member, National Governing Council: Indian Society for Non-Destructive Testing (ISNT)
- Referee to European Research Council Starting Grants (Physical Sciences and Engineering).
- Referee to Indo-French Centre for the Promotion of Advanced Research (IFCPAR/ CEFIPRA)
- Member, National Governing Council: Indian Society for Non-Destructive Testing (ISNT)
- Expert member for Senior Scientific/Technical Officers Selection Committee of Department of Atomic Energy (DAE), Govt. of India.
- Reviewer to SERB Project Proposals, Department of Science & Technology (DST), Govt. of India.
- Reviewer to National Project Implementation Unit (NPIU), MHRD, Govt. of India.
- Invited Talk on Non-destructive Evaluation of Composites at GE (John F. Welch Technology Centre) Composites Workshop: March 16th-18th at JFWTC, Bangalore, India, 2015.
- Invited Talk at Defence Metallurgical Research Laboratory (DMRL) on Advanced Infrared Thermography, Ministry of Defence, Govt. of India, 2015.
- Invited Presentation on Non-destructive Testing of Composites by Naval Science & Technological Laboratory, Ministry of Defence, Govt. of India.
- Keynote/Invited Speaker: The first QIRT-ASIA conference on quantitative infrared thermography-2015.
- Invited Talk @ National conference on Non-destructive Evaluation (NDE-2015), ISNT, Hyderabad, India.
- Plenary Talk @ IEEE International conference on Signal Processing And Communication Engineering Systems (SPACES 2015).
- Invited Presentation on Acquisition, Understanding and Applications of Multiscale Biomedical Images by Information Technology Research Academy, Dept. of Information Technology, Ministry of Communications and Information Technology, Govt. of India.
- Invited Presentation on Frequency Modulated Thermal Wave Imaging for Non destructive Testing of Solids, Beihang University, Beijing, China.
- Invited Presentation on Research on Non Destructive Testing by Thermal Diffusion Waves by Nihon University, Tokyo Japan.
- Invited to deliver lectures for Level II Training and Certification course on Infrared Thermography by Indian Society for Nondestructive Testing (kalpakkam chapter), Feb-2015.

- Invited to deliver lectures on Infrared Thermography by Indian Society for Nondestructive Testing (thiruvananthapuram chapter), October-2015.
- Invited Presentation on Frequency Modulated Thermal Wave Imaging and Its Applications at 14th Asian Pacific Conference on Non-destructive Testing 2013.
- Invited to deliver Series of Lectures at National level Workshop on Durability and Performance Assessment of the Emerging Advanced Materials by Non-destructive Evaluation.
- Invited to deliver Lectures in the Training Course on Digital Signal Processing at the Centre for Continuing Education, IIT Roorkee 2103.
- IEEE Advisory Committee Member: International Conference on Control, Instrumentation, Communication & Computational Technologies (ICCICCT 2014).
- IEEE Advisory Committee Member: International Multi-conference on Automation, Computing, Communication, Control and Compressed Sensing-2013.
- Advisory Committee Member: International Conference on Technical Challenges in Instrumentation, Computer Science, Civil and Mechanical, Electronics and Electrical Engineering (ICCEECON-2015).
- Advisory Committee Member: International Conference on innovations in Computer, Communication and Control technologies-2014.
- Advisory Committee Member: International Conference on Control, Instrumentation, Communication & Computational Technologies (ICCICCT)-2015.
- Technical Programme Committee Member: International Conference on Advances in Computing, Communications and Informatics-2015.
- Invited Talk @ National conference on Non-destructive Evaluation (NDE-2014), ISNT, PUNE, India.
- Co-ordinator for special issue on Infrared Thermography, Journal of Non destructive Testing & Evaluation, Vol.12(2), 2013.
- Session Chair: NDE using Thermography - 2 @ Asian Pacific Conference on Non-destructive Testing-2013, Mumbai, India, November 2013.
- Expert Committee Member for Innovation Fund Competition of Canada Foundation for Innovation (CFI).
- Referee to European Research Council Starting Grants (Physical Sciences and Engineering).
- Referee to Indo-French Centre for the Promotion of Advanced Research (IFCPAR/ CEFIPRA)
- Member, National Governing Council: Indian Society for Non-Destructive Testing (ISNT)

Reviewer to Peer Reviewed Journals (selected):

	• Proceedings of the Royal Society A: Mathematical, Physical & Engineering Sciences • AIP: Applied Physics Letters • AIP: Review of Scientific Instruments • AIP: Journal of Applied Physics • IOP: Measurement Science & Technology • IOP: Journal of Physics D: Applied Physics • IEEE: Transactions on Terahertz Science and Technology • IEEE: Transactions on Industrial Electronics • IEEE: Transactions on Industrial Informatics • IEEE: Transactions on Circuits and Systems I: Regular Papers • IEEE: Transactions on Instrumentation and Measurement • IEEE: Transactions on Medical Imaging • IEEE: Transactions on Education • IEEE: Sensors Journal • IEEE: Access • IEEE: Photonics Journal • IEEE/OSA: Journal of Lightwave Technology • IET: Electronics Letters • IET: Image Processing • Elsevier: Infrared Physics & Technology • Elsevier: Non-destructive Testing & Evaluation International • Elsevier: Journal of Physics & Chemistry of Solids • Elsevier: Materials Letters • Elsevier: Composites Part B: Engineering • Elsevier: Corrosion Science • Elsevier: International Journal of Heat and Mass Transfer • Elsevier: International Journal of Thermal Sciences • Elsevier: Mechanical Systems and Signal Processing • Elsevier: Polymer Testing • Elsevier: Chemometrics and Intelligent Laboratory Systems • Elsevier: Journal of Tissue Viability • Elsevier: Automation in Construction • Elsevier: Heliyon • Elsevier: Computerized Medical Imaging and Graphics • Elsevier: Journal of Advanced Research • Elsevier: Measurement • Springer: Journal of Non-destructive Evaluation • Springer: Opto-Electronics Review • Springer: International Journal of Thermophysics • Springer: Pure and Applied Geophysics • Taylor & Francis: Quantitative InfraRed Thermography Journal • Taylor & Francis: IETE Journal of Research • ASNT: Materials Evaluation • ASTM: Journal of Testing and Evaluation • BINDT: Insight: Non-Destructive Testing and Condition Monitoring

- SPIE: Journal of Electronic Imaging
- SPIE: Optical Engineering
- ACI: Structural Journal
- ACI: Materials Journal
- PIER: Progress in Electromagnetic Research & Journal of Electromagnetic Waves and Applications
- ETRI Journal

DRDO: Defence Science Journal

Citations:

- Scopus h-index: 20 (Scopus Citations 1310)
- Web of Science h-index: 18 (Web of Science Citations 1003; Average Citations per Year: 47.50; Average Citations per Item: 21.11)
- Google Scholar h-index: 22 (Citations 1645)
- Google Scholar i10-index: 30 (Citations 1645)
- Research Gate h-index: 19(RG Score 29.30)
- ORCID
- Mendeley (Citations 1292)
- ResearcherID
- Indian Research Information Network System
- Kudos Innovations Ltd

Under Graduate Student Supervision:

B.Tech Projects Supervision (Completed): 25 (50 Students)

First B.Tech (undergraduate) Project: (Citation in US Patent)

PhD Thesis Evaluations (in the field of Non-invasive Imaging/Non-destructive Testing): 15

Integrated M.Tech PhD Thesis Evaluations (in the field of Non-invasive Imaging/Non-destructive Testing): 2

MS (By Research) Thesis Evaluation (in the field of Non-invasive Imaging/Non-destructive Testing): 1