

| S/No. | Project Title | Type of Project | Role | Status |
|--|--|-----------------|-----------------|-------------------|
| Electromigration (Reliability physics for metal Interconnect) | | | | |
| 1. | Studies of wafer level electromigration test for ULSI | M.Sc | Sole supervisor | Completed In 2001 |
| 2. | Development of electromigration model for ULSI interconnection | M.Eng | Sole Supervisor | Completed In 2002 |
| 3. | Development of low frequency noise measurement for the electromigration study | M.Eng | Sole Supervisor | Completed In 2002 |
| 4. | Development of highly Accelerated EM test | Ph.D | Sole Supervisor | Completed In 2009 |
| 5. | Modeling of creep in solder during electromigration | Ph.D | Sole supervisor | Completed In 2009 |
| 6. | Study of EM in NANO interconnections | Ph.D | Sole Supervisor | Completed In 2010 |
| 7. | Study of Interconnect Reliability in 3D Integrated Circuit | Ph.D | Sole Supervisor | Completed In 2012 |
| 8. | Reliability of Reservoir Effect on Nano-interconnections | M.Eng | Sole Supervisor | Completed In 2011 |
| 9. | Reliability of Through silicon via | M.Eng | Sole Supervisor | Completed In 2011 |
| 10. | Graphenated copper fabrication technique for ULSI Interconnects' | Ph.D | Main Supervisor | Completed In 2018 |
| 11. | A practical 3D modelling tool for Electromigration of interconnects in Advanced Integrated Circuit Technology Node | M.Eng | Sole Supervisor | Completed In 2023 |
| Nanoelectronics | | | | |
| 12. | Experimental Study of Enhancing thermal conductivity of polymer using carbon Nanotube | Ph.D | Sole Supervisor | Completed In 2011 |
| Quality and Reliability Engineering | | | | |
| 13. | Quantitative Engineering Analysis of QFD Design Parameters in Semiconductor industry using an expert system | M.Eng | Sole Supervisor | Completed In 2001 |
| 14. | Development of reliability data analysis software for semiconductor industry | M.Eng | Sole Supervisor | Completed In 2001 |
| 15. | Implementing Plasma induced damage rules in design rules | M.Sc | Sole Supervisor | Completed In 2002 |
| 16. | 70nm yield improvement Through Spatial signature analysis | M.Sc(TUM) | Sole Supervisor | Completed In 2011 |
| 17. | Predictive Maintenance System Theory | Ph.D | Sole Supervisor | Completed in 2014 |
| 18. | Reliability of Battery pack for electric vehicle | Ph.D | Sole Supervisor | Completed In 2015 |

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|--|---|---------|-----------------|-------------------|
| 19. | Reliability Study of High Power Solid State Lightning Driver | Ph.D | Sole Supervisor | Completed in 2015 |
| 20. | Reliability study of copper wire bonding | Ph.D | Sole Supervisor | Completed In 2016 |
| 21. | Reliability study of high power LEDs | Ph.D | Main Supervisor | Completed In 2018 |
| 22. | Reliability Study of GaN-HEMT - with the perspective of Electromagnetic Emissions | Ph.D. | Sole Supervisor | Completed In 2019 |
| 23. | Application of Density Functional Theory for Detailed Degradation Physics Investigations of Light Emitting Diodes (LED) | Ph.D. | Sole Supervisor | Completed In 2023 |
| 24. | Organization reliability Capability Audit Standard | M.Eng | Sole Supervisor | Completed In 2023 |
| Wafer Bonding/Power Semiconductor Devices | | | | |
| 25. | Fabrication of Partial Power SOI structure | M.Eng | Sole Supervisor | Completed In 2000 |
| 26. | Design of insulated gate bipolar transistor using novel structure | M.Sc | Sole Supervisor | Completed In 2001 |
| 27. | Inverse simulation for device modelling | M.Sc | Sole Supervisor | Completed In 2001 |
| 28. | Effect of wafer bonding parameters on device performances for SOI devices | M.Eng | Sole Supervisor | Completed In 2002 |
| 29. | Fabrication and characterization of partial SOI using wafer bonding | Ph.D | Main Supervisor | Completed In 2006 |
| 30. | Hot Carrier Degradation Study for Power LDMOS | M.Eng | Sole Supervisor | Completed In 2009 |
| RADIATION | | | | |
| 31. | GaN Based Prompt Gamma Readout Circuit Design and Fabrication for Proton Therapy Application | Ph.D. | Sole Supervisor | Completed In 2021 |
| EMI/EMC | | | | |
| 32. | Study of electromagnetic emissions (EME) from mid frequency integrated circuits (ICs) | Ph.D | Sole Supervisor | Completed In 2020 |
| Battery | | | | |
| 33. | Semi-empirical mathematical model for rechargeable Li-Ion battery cycle life | M. Eng. | Sole Supervisor | Completed In 2020 |
| Others | | | | |
| 34. | Application and feasibility of new type pulse oximeter for low SpO ₂ detection | M. Eng. | Sole Supervisor | Completed In 2020 |
| 35. | Machine Learning Based Prediction and Analysis Algorithms | M. Eng. | Sole Supervisor | Completed In 2020 |