

“Professionally I want to work many more years in this very dynamic environment and see lithium-ion solid-state batteries used everywhere, just like the current lithium-ion batteries are now used in our smartphones and electric vehicles.”

Innovative radar measurements for vehicles

Bhutani also did nearly five years of research and developed a new radar front-end for the frequency of 122 GHz that uses a technology previously not usable in this frequency range. The new component can easily be installed with other electronic components. It can even measure distances under poor visibility and ambient conditions, meaning it can be used for automotive

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about the award and want to thank all those who supported me and made my research possible.”

Climate-friendly electric vehicle charging

Matthias Luh received a special prize for his master’s thesis: “The expansion of renewable energy and the charging of electric vehicles are two challenges driving large areas of research and industry. In my master's thesis I looked at the “Vehicle-to-Grid” concept that offers two solutions through the intelligent connection of electric vehicle batteries to the power grid: The climate-friendly charging of electric vehicles and the interim storage of energy from solar and wind sources.” This is possible thanks to power electronics in battery chargers that have new topologies and use new semiconductor materials to make them more efficient and powerful, while also making them as compact and affordable as current devices. A lot of energy went into the master's thesis and I see the prize both as a sign that it was worth it and that the topic is extremely relevant, and I am looking forward to continuing my research,” says Luh.

Prize winners 2019

- Dr. Philipp Braun: Electrical characterization and modelling of solid state batteries
- Dr. Akanksha Bhutani: Low Temperature Co-fired Ceramic for System-in-Package Applications at 122 GHz
- Dr. Bartosz Gladysz: Design and interdependence-based description of fault mechanisms for a more effective and efficient identification, analysis and traceability of fault sequences and causes
- Special prize for master's thesis:
Matthias Luh: Development of a resonant, high efficiency bidirectional Li-Ion battery charger with silicone-carbide semiconductors

