



## Tribology of Electric Vehicles

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### Message from the Guest Editors

The automotive industry's shift to electrification presents new tribology challenges. Although the number of moving parts in battery electric vehicles (BEVs) has reduced significantly compared to internal combustion engine vehicles (ICEs), tribological concerns facing BEVs go beyond ICEs. BEVs are heavier, placing more load on wheel bearings and tires. Driveline fluids, historically made to protect gears from scuffing and pitting and provide traction characteristics for clutches, now operate at increased rotational speeds, in an environment with stray electric currents, and may act as a coolant in direct contact with the motor and inverter. They must also continue to protect gears from pitting and scuffing. These challenging requirements have created a need for new base fluids and additives.

Traditional ICE fluid test methods are generally not suitable for understanding the behavior of EV fluids. Research has shown the presence of electric current influences friction and wear as well as fluid properties. This collection of manuscripts will present approaches to studying EV fluids and greases. Test method development, initial findings, and thoughtful discussions will be presented.

