



International Journal of Vehicle Design

Special Issue on: "Advanced Safety Design and Control for Electric Vehicles"

Guest Editors:

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Electric vehicles (EVs) have been widely reckoned as a viable means to meet the challenges of greenhouse gas emissions and fuel oil depletion in the transportation sector. The transition towards automotive electrification is accelerating worldwide even against the backdrop of declining global car sales under the Covid-19 pandemic's impact. However, EV safety accidents still have pervasive presence in daily life ranging from conventional safety-critical actuator malfunctions to eye-catching battery fault-induced fires and autopilot failures. Hence, safety design and control is a perpetual topic among automotive practitioners and remains the focus of intensive research. The safety of an EV is not only highly related to the design engineering for its key subsystems and overall structure, but also involves with the control synthesis for these systems. To ensure EV safety, substantial efforts have been directed to optimising systems design and developing modelling, state estimation, fault diagnostics and active control methods.

This special will focus on new developments and research in the design and advanced safety control for electric vehicles, covering battery systems, electric drive systems, X-by-wire chassis systems, active safety control system modelling, simulation and experimental demonstration, among other topics.

Subject Coverage

Suitable topics include, but are not limited, to the following:

- Safety-awareness battery system design
- Battery management techniques including SOC, SOH and SOP estimation and fault diagnostics
- Battery thermal runaway prognosis and management
- AI application to battery safety management
- Fault detection and isolation for electric drive systems
- Powertrain modelling, simulation and verification
- Design and control of high-voltage multi-port converter
- Wholistic X-by-wire chassis design
- Vehicle dynamics analysis and key vehicle parameter and state estimation
- Design and control synthesis of X-by-wire chassis systems including steer-by-wire, brake-by-wire and active/semi-active suspension
- Integrated control of X-by-wire chassis systems
- Fault-tolerant control of chassis systems
- Driving behaviour recognition and vehicle dynamics stability assessment
- Probabilistic analysis and uncertainty quantification
- Advanced driver assistance systems

Notes for Prospective Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. (N.B. Conference papers may only be submitted if the paper has been completely re-written and if appropriate written permissions have been obtained from any copyright holders of the original paper).

All papers are refereed through a peer review process.

All papers *must* be submitted online. To submit a paper, please read our [Submitting articles](#) page.

Important Dates

Manuscripts due by: *30 September, 2021*

Notification to authors: *30 November, 2021*

Final versions due by: *31 January, 2022*