Guest editorial: Advanced sensing and control techniques for safety enhancement of power electronics components and systems in renewable energy applications-Part 1

First of all, we would like to take this opportunity to deeply remember Prof. John Karl Atkinson, the former editor-in-chief of *Microelectronics International*. In 2022, at the invitation of Prof. John Karl Atkinson, we organized a special issue titled "Emerging Technologies for Highly-Reliable Power Electronic Systems in Miniaturized Electronic Devices." Due to the success of the previous special issue, Prof. John Karl Atkinson invited us again in March 2025 to organize another one for *Microelectronics International*. Consequently, we commenced the relevant work, with Prof. John Karl Atkinson providing tremendous support throughout. However, it is with great sadness that we learned of his passing in November 2025. We are deeply saddened by the loss of such a wonderful person.

In loving memory of Prof. John Karl Atkinson. R.I.P.

On the other hand, power electronics components and systems play a pivotal role in renewable energy applications, including photovoltaic systems, wind turbines, energy storage systems, and grid-connected converters. As the global energy landscape shifts toward clean and sustainable sources, ensuring the safe, stable, and efficient operation of these power electronics systems becomes increasingly critical. However, harsh environmental conditions, variable loads, and the intermittent nature of renewable energy sources introduce complex operational challenges and heighten the risks of failures, degradation, and safety hazards. Therefore, it is essential to present the latest research and development in sensing and control technologies that contribute to the safety enhancement of power electronics components and systems in renewable energy applications.

The call for papers for the Special Issue on Advanced Sensing and Control Techniques for Safety Enhancement of Power Electronics Components and Systems in Renewable Energy Applications was released in May 2025. We received submissions from around the globe, which were processed by our editorial team in China and Europe and underwent rigorous peer review by international experts. As a result, six papers were accepted for the inaugural issue. Each of these accepted papers addresses one particular challenge with innovative solutions.

Given the continued enthusiasm from authors and the high quality of submissions, we launched Part 2 of the special issue, with a submission deadline of June 2026 and publication scheduled for later that year. We believe the overwhelming response and the excellence of the contributions serve as a fitting tribute to the legacy of Prof. John Karl Atkinson, whose guidance and passion inspired this initiative. His memory will continue to drive our commitment to advancing this field.

We appreciate the efforts from all authors who had submitted papers and we appreciate timely reviews from reviewers, especially at this time of difficulty. We would like to express our deep gratefulness to Prof. John Karl Atkinson, the former Editor-in-Chief, and Dr Chong Leong Gan, the current Editor-in-Chief, for their tremendous support from the initiative throughout the final stages of this Special Issue. Finally, we would like to thank the *Microelectronics International* staff involved with the production and technical support of this Special Issue.

We look forward to seeing more great papers on Emerging Technologies for safety enhancement of power electronics components and systems in *Microelectronics International* in the time yet to come and your continuous support of the journal.

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Microelectronics International
43/2 (2026) 37

[DOI 10.1108/MI-03-2026-309]