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Special Issue Reprint

Application of Laser Processing Technology in Automobile Manufacturing

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The manufacturing sector is increasingly adopting laser-based material processing technologies due to their unparalleled efficiency, flexibility, and productivity. This suite of technologies, encompassing processes such as welding, cutting, additive manufacturing, drilling, coating, ablation, texturing, and polishing, has revolutionized the fabrication and treatment of diverse materials, including metals, ceramics, polymers, and natural substances. Nowhere is this innovation more critical than in the automotive industry, which is undergoing a profound transformation driven by the global transition to electric vehicles (EVs). This shift necessitates unprecedented advancements in manufacturing to achieve higher efficiency, reduce costs, enhance vehicle performance, and accelerate the development of new components like lithium-ion batteries. This special issue aims to highlight the transformative impact of laser-based material processing on the modern automotive industry. By bringing together original research on welding, additive manufacturing, battery production, and sustainability, it will provide a valuable platform for academics and industry professionals to share knowledge and foster innovation. The collective insights will not only advance the scientific understanding of these processes but also directly contribute to the development of more efficient, affordable, and high-performance electric vehicles, ultimately supporting the global transition towards sustainable transportation.

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