Special Issue

Laser Ultrasound Techniques for Aerospace Applications

Message from the Guest Editors

Ultrasonic testing plays a crucial role in ensuring structural integrity and performance evaluation across the aerospace industry. However, conventional contact ultrasound methods have limitations for in situ inspection of complex aircraft components. Recently, laser-based non-contact ultrasound techniques have shown great potential to address these challenges. This Special Issue aims to advance the field by bringing together the latest research. Original contributions are invited to address topics including, but not limited to, innovative laser ultrasound generation and detection techniques; multi-modal wave analysis and imaging algorithms; coupling characterization for advanced materials and surfaces; laser-based simulation of pyroshock, mechanical shock waves, or acoustic emissions; and case studies demonstrating field trials. Both theoretical and experimental studies that propel the methodology toward routine industrial deployment are welcome.

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