



1st Biennial ESIS-CSIC Conference on Structural Integrity (BECCSI 2025), in period November 25-28, 2025 (www.beccsi2025.com)

Title of the minisymposia:

**Understanding Damage Mechanisms in Additive Manufacturing: Fracture,
Fatigue, and Future Trends**
ESIS TC15 topic

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Short description of the minisymposia:

Additive Manufacturing (AM) has evolved into one of the key manufacturing technologies, expanding beyond prototyping to enable the production of functional components for load-bearing applications. AM facilitates a rapid design-to-manufacture process of customized parts with complex geometries, offering an unmatched impact on engineering applications compared to conventional production technologies. A comprehensive understanding of the mechanical and functional behavior of AM structures is essential for the effective implementation of high-performance components in the next-generation automotive, aerospace, and biomedical applications. In particular, gaining insight into the fracture and fatigue behavior of AM structures is crucial, as these phenomena directly affect the structural integrity and service life of components under real-world operating conditions. To address these challenges, ESIS Technical Committee 15 (TC15) brings together leading experts and practitioners in the field to exchange knowledge, foster innovation, and establish advanced methodologies for evaluating and enhancing the fracture and fatigue performance of AM components.

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