

**Special Session at the International Conference on Fracture, Damage and Structural Health
Monitoring – FDM 2026 (<https://fdm.engineeringconferences.net>)**

Special Session: Structural Integrity and Crashworthiness of Hydrogen Storage Systems

Venue: Seville, Spain

Dates: 21–23 September 2026

Organized by:

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Call for papers:

Hydrogen storage systems are becoming increasingly important for future aerospace and transport applications. At the same time, they raise several structural and safety-related challenges, especially when lightweight solutions, demanding operating conditions, and accidental events such as impacts or crash scenarios are considered.

The aim of this special session is to collect contributions dealing with the structural behaviour of hydrogen storage systems, with particular attention to failure mechanisms, crashworthiness, damage tolerance, testing, and modelling. Both methodological and application-oriented works are welcome.

Topics of interest include, but are not limited to:

- static, dynamic, impact, and crash response of hydrogen storage systems
- structural integrity of tanks, supports, interfaces, and integrated storage architectures
- failure mechanisms in composite, metallic, and hybrid storage structures
- fracture, fatigue, damage tolerance, and residual strength
- thermo-mechanical behaviour under cryogenic, pressurised, and combined loading conditions
- permeation, leakage-related effects, and durability issues
- Multiphysics and multiscale modelling of hydrogen storage systems
- tank-support interaction and load transfer mechanisms
- crash mitigation, protective concepts, and energy-absorbing structural solutions
- experimental testing and validation from coupon to full-scale level
- non-destructive testing, inspection, and structural health monitoring
- certification-oriented design and safety assessment methods
- applications to gaseous, liquid, and cryo-compressed hydrogen storage

The session is intended for researchers from academia, research centres, and industry working on the analysis, design, testing, and validation of hydrogen storage technologies.

Submission Information

For this special session, abstracts (200 words), including the list of co-authors, should be sent by 30 April 2026 to m.h.aliabadi@imperial.ac.uk, with alessandro.deluca@unicampania.it in CC, and with the special session title clearly indicated in the email.

Accepted contributions may be considered for publication in the conference proceedings.