

Numerical investigation on the impact resistance of a hydrogen fuel tank

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Summary: In near future, the main challenge is to reduce the use of fossil fuels that currently emit the bulk of global CO₂ emissions, responsible of the global warming and climate change. Hydrogen, as a future fuel candidate, would play a significant role for net-zero emission requirements. As a matter of fact, new hydrogen tank design is needed to bring this technology to the readiness level. his paper aims to investigate on the impact resistance of a hybrid aluminum-composite hydrogen tank. In particular, the paper presents the development of two finite element (FE) models for the simulation of two impact scenarios experimentally investigated and proposed in literature. The models provided acceptable levels of accuracy with consequent benefits in supporting designers in the certification process of such device type.