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	Sommario/riassunto	This work addresses the performance of novel metallic hollow-sphere structures (MHSS) in sandwich panels. Numerical finite-element analyses and experimental tests are described. The first part of the book focuses on the various types of metallic hollow-sphere structure. The influence of morphology, topology, joining technology and material composition upon their mechanical properties is investigated numerically. Uniaxial compressive tests, with adhesively-bonded MHSS, are performed in order to confirm the numerical findings. In addition, the effective thermal conductivities of MHSS