

SHAPE MEMORY ALLOY ENGINEERING

FOR AEROSPACE, STRUCTURAL AND BIOMEDICAL APPLICATIONS



Shape Memory Alloy **ENGINEERING**

for Aerospace, Structural and Biomedical Applications

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to Pasquale, who reshaped his life

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Prof. Lecce's main research interests are prediction and control of noise and vibration in transportation systems; development of structures and systems integrating innovative smart materials; damage detection and health monitoring of structures; and morphing of aircraft wing and control surfaces. He was Scientific Responsible for the Federico II University for several EU and nationally funded research contracts. He was the European Scientific Coordinator of the MADAVIC (Magnetostrictive Actuators for Damage Analysis and Vibration Control, 5th Framework Programme, FP) and MESEMA (Magnetoelastic Energy Systems for Even More Electric Aircraft, 6th FP) projects. Within the 7th FP (2007–2013), he was the Coordinator of Airgreen (a company association made of nine partners), Associate Member of the Alenia-managed Green Regional Aircraft Consortium (GRA), a part of the EU Joint Technology Initiative (JTI), Clean Sky—Integrated Technological Demonstrator (ITD).

The results of his research activities are reported in more than 250 papers published in national and international journals and conference proceedings.



Dr Antonio Concilio was born in Salerno, Italy, on December 23, 1964. In 1988 he took his degree with honors in Aeronautical Engineering at the University of Naples Federico II, Italy, where in 1995 he also achieved his PhD in Aerospace Engineering. In 2008, he attained the ECATA ABI Diploma (European Consortium for Advanced Training in Aerospace—Aerospace Business Integration) on Aerospace Environment, Integrated Product Development, and International Project Management at the University of Pisa, Italy. Since 1989, he is Researcher at the Italian Aerospace Research Centre (CIRA). Between 1995 and 2000, he was Head of the Area of

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In 1998, he took his master degree in Aeronautical Engineering at the University of Naples Federico II, Italy, defending a thesis on heat transfer due to jets in cross-flow. In 2002, he defended his PhD thesis on morphing architectures for transonic performance enhancement. Since 2002, he is researcher at the Italian Aerospace Research Centre (CIRA), Italy, where he performs research activities in the Smart Structures & Vibroacoustics Laboratory, within National and European frames. He published more than 60 papers on international journals and symposia. Since 2009, he is a regular reviewer of the *Journal of Intelligent Material Systems and Structures*. In 2012, he applied for an EU patent concerning a droop nose architecture for aircraft wings (pending). In 2013, he was awarded an EU/US patent on an aircraft Shape Memory Alloys (SMA) morphing flap.

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He is assistant professor of mechanics of solids at the Department of Civil Engineering and Computer Science of the University of Rome — Tor Vergata, Italy. At the same university, he is member of the scientific board of the PhD program in civil engineering. His research interests are constitutive modeling of advanced materials, nonlinear finite element methods, and homogenization methods for functionally graded composite materials. He published 16 papers in international journals (h-index = 8 based on SCOPUS).

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