The aim of the sponsors of the 9th Pan American Congress of Applied Mechanics (PACAM IX) was to promote progress in the broad field of mechanics by (1) exposing mature engineers and scientists, as well as advanced graduate students, to new research findings, techniques, and problems, and (2) providing opportunities for personal interactions through formal presentations and informal conversations. The meetings are traditionally held every two years in a Latin American venue, at a time when few other conferences are scheduled. The previous Congresses were held in Rio de Janeiro, Brazil (1989); Valparaíso, Chile (1991); São Paulo, Brazil (1993); Buenos Aires, Argentina (1995); San Juan, Puerto Rico (1997); Rio de Janeiro, Brazil (1999); Temuco, Chile (2002); and Havana, Cuba (2004).

PACAM IX was held at the Fiesta Americana Hotel in Mérida, Mexico, from January 2–6, 2006, and was cosponsored by the American Academy of Mechanics; the US National Science Foundation; the Air Force Office of Scientific Research; Universidad Nacional Autónoma de México’s Instituto de Ingeniería, Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, Centro de Ciencias Físicas, Coordinación de la Investigación Científica, Facultad de Ingeniería, Instituto de Física; and Universidad Autónoma de Yucatán’s Facultad de Ingeniería, Facultad de Matemáticas; and CINVESTAV, Mérida, Yucatán. Approximately 75 attendees from 20 countries enjoyed a very productive and collegial meeting in Mérida.

Following the PACAM IX meeting the organizers invited authors of selected talks to submit full-length articles on the matter of their presentation. These papers were then subjected to the normal peer review and editorial process of the Journal of Mechanics of Materials and Structures. This special issue is the collection of the accepted papers.

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