

Preface

This book contains selected papers from the presentations made at the first international Structural Integrity Conference and Exhibition (SICE 2016) held at Hotel Le Meridien, Bangalore, during July 4–6, 2016. The conference, exhibition, and pre-conference workshop were organized jointly by the Indian Structural Integrity Society (InSIS), Indian Institute of Science, Bangalore, and Indian Institute of Technology Madras, Chennai. The timing of the conference was particularly appropriate, given the critical role of total structural integrity in the new manufacturing initiatives of the Government of India, such as the “Make in India” program. Of the 134 oral and poster presentations, a total of 57 were finally selected for publication after a peer review.

The conference attracted nearly 220 registrants from seven countries (India, Japan, USA, Russia, Ukraine, Switzerland, and UK) apart from the 56 registrants for the 2-day pre-conference workshop held during July 2–3, 2016 at IISc, Bangalore, and BiSS Research, Bangalore. SICE2016 was also convened as the Inter-Quadrennial Conference of the International Congress on Fracture (IQ-ICF).

The SICE 2016 conference focused on all aspects relating to Structural Integrity, including Fatigue and Fracture Mechanics; Creep–Fatigue Interactions; Structural Health Monitoring; Failure Analysis; Experimental Techniques; Computation Methods; Metals, Composites, and New Generation Materials. The range of applications covered bioengineering, aerospace structures, civil engineering structures, power plants, and transportation. The conference spanned 3 days with 6 plenary lectures, 23 invited lectures, and 93 contributed papers delivered by researchers working in the domain of structural integrity in three parallel sessions. There were 12 poster presentations, mostly from research scholars.

About 85 authors were invited to submit full-length manuscripts after the conference deliberations, and the same was reviewed by a team of 60 domain experts from various organizations. The high quality of the final selection of papers is due to the hard work put in by all the reviewers and volunteers, and we acknowledge their support. We hope this volume will serve as a good reference for practicing researchers in the domain and as a good source of material for budding engineers and scientists.

The conference was sponsored by several agencies such as Department of Science and Technology, Defence Research and Development Organization, and Atomic Energy Regulatory Board of the Government of India; BiSS Research, Bangalore; MTS Systems Corporation, USA, along with its local distributor Techno Testing Instruments; ABS Systems, Chennai; Altair Corporation; Honeywell Corporation; and Hysitron NanoTechnology India Pvt Ltd, Thiruvananthapuram. Springer provided support in the form of merit prizes for the best poster papers presented at the conference and is proud to be associated with bringing out this collection of selected papers as a book in Lecture Notes in Mechanical Engineering.

This conference provided a platform for practicing scientists and engineers to disseminate their knowledge and learn from one another's experience. We hope that this tradition will continue and that the Biennial SICE / IQ-ICF conferences will play a key role in advancing knowledge in this critical domain of structural integrity.

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Advances in Structural Integrity

Proceedings of SICE 2016

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2018, XVII, 702 p. 468 illus., 244 illus. in color.,

Hardcover

ISBN: 978-981-10-7196-6