

# Preface

This volume contains 37 technical papers from the 2016 Conference, Fatigue Durability India. The theme of this 2nd International conference was fatigue, durability and fracture mechanics. As in the past conference, the format consisted of keynote talks, invited lectures, contributed papers, exhibition and contributed posters. A total of 220 delegates participated in the conference, and 72 papers were presented in Fatigue Durability India 2016.

The conference began with the domain experts Shri. R.J. Patel—BARC; Shri. B. Jaypal—Defence; Prof. Dattaguru—Former Professor, IISC; Shri. B.N. Suresh—Former Member of Space Commission; Prof. Pingsha Dong—Director, Welded Structures Lab, University of Michigan, USA, introducing various contemporary technical aspects in the areas of fatigue, durability and fracture mechanics in nuclear energy, defence, aerospace and welded structures. This was followed by keynote talks from Prof. Dattaguru, Prof. Pingsha Dong, Prof. Kamran Nikbin—Imperial College London and Dr. Omar Ibrahim—MD Process Optimisation, USA.

In the parallel sessions that followed on the first day as well as second and third days, 68 contributed paper presentations were made.

The second-day keynote presentations are made by Prof. Adolfo B. Matamoros—The University of Texas at San Antonio; Dr. G. Raghava—Chief Scientist at CSIR; Dr. Ramesh Chadwani Managing Director of Zentech International, UK; Dr. Asim Ghosal—Consulting Engineer/Technologist at GE Aviation, Bangalore. The third-day proceedings were further enriched by the following keynote speakers: Prof. Xiaosheng Gao—University of Akron; Dr. Yogesh K. Potdar—Manager at GE Global, India; Dr. U. Kamachi Mudali—Outstanding scientist and Associate Director at IGCAR, Kalpakam; Dr. R.C. Prasad—Former Professor at IIT Bombay; Dr. Rabindra Nath Ghosh—Chair Professor at IIT Kharagpur; Mr. M. Mohan Kumar—Senior Scientist, SSTD, CSIR-NAL and Mr. Vitthal Londhe—Technical Specialist at Siemens Industry Software, Pune.

All the presented papers led to detailed interactions in the areas of crack growth in nonlinear problems, advances in master S-N curve method for fatigue evaluation and welded structures, fracture mechanics-based structured integrated problems,

realistic fatigue life predictions, fatigue studies in water power reactors, viscoelastic parameters, behaviour of stainless steel at high temperatures, thermal stripping studies in dynamic sodium environment, potentiality of small punch test to generate J-R curve, materials characterisation and productive modelling, failure analysis studies, civil engineering applications, high-temperature crack growth behaviour, effectively induced residual stress, investigations and real size components, technology trends in aircraft engines, multi-axial fatigue tests, environmental effects, structural integrity assessment of UAV structures, fatigue strength of Al-Mg alloy processed by cryorolling, failure studies and coatings, creep-fatigue evaluation life assessment extension and certification, application in automotives, bridges, piping, operating machines, elasticity and ductile fracture, corrosion fatigue and hydrogen embrittlement, importance of structural test developments and significance and importance of durability for engineering components. The conference ended with the three awards of presentations to Mr. J. Veerababu of IGCAR, Chennai, Mr. Anjaneya Dixit of IIT Delhi and Mr. Siddappaji B. of ADE, DRDO.

The conference was sponsored by IOCL, KPCL, ISRO, BISS, Ansys, ICAT, Altair, CADMarC, NETZSCH Technologies, TII Techno Testing Services, TCR Engineering Services and IIPE.

This volume contains 37 papers featuring significant aspects of fatigue durability and fracture mechanics emphasising structural integrity of components as addressed through materials characterisation, productive modelling, environmental as well as service conditions component fabrications roots and damage diagnosis along with condition assessment and defect tolerance potential.

We thank all the sponsors, participants and exhibitors for their contributions to Fatigue Durability India 2016. We specially thank the authors and reviewers of the papers in this volume. Special thanks to all organising committee members and programme committee members of Fatigue Durability India 2016.

Bengaluru, India  
Hyderabad, India  
Bengaluru, India

Dr. S. Seetharamu  
Dr. K. Bhanu Sankara Rao  
Dr. Raghunath Wasudev Khare

Proceedings of Fatigue, Durability and Fracture  
Mechanics

Seetharamu, S.; Rao, K.B.S.; Khare, R.W. (Eds.)

2018, XII, 471 p. 320 illus., 222 illus. in color.,

Hardcover

ISBN: 978-981-10-6001-4