

Fatigue Durability India 2016

2nd International Conference & Exhibition on Fatigue, Durability and Fracture Mechanics

& Symposium on Condition Assessment/Residual Life Assessment & Extension

28-30th September 2016, J N Tata Auditorium, Indian Institute of Science, Bangalore India



Organised by



Institute of
Structural Integrity
and Failure Studies

India Science Foundation

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About the Conference

We heartily welcome you to FatigueDurability India 2016 – **2nd International Conference on Fatigue, Durability and Fracture Mechanics** and **Symposium on Condition Assessment / Residual Life Assessment and Extension** to be held at **J N Tata Auditorium, NSSC Complex, Indian Institute of Science, Bangalore from 28-30th September 2016.**

Market demands, consumer expectation, engineering product design challenges, safety requirements, and adaptation to changing environmental conditions are growing day by day. Designers are facing ocean of challenges to meet this demand in respect of expectation of efficient, safe, long life, durable, reliable, cost effective products in a shortest possible lead time. Innovations are inevitable to achieve best solutions. However, it makes engineering product designers challenge more complex in acquiring the knowledge of physics behind phenomenon associated with fatigue, fracture, material, process, product design, validation techniques & verification procedures to meet the real world challenge. It is the need of the hour to acquire, adopt and excel in this knowledge.

Further, On the other hand, it is a billion dollar question to **repair & re-use** or **reject** the existing structures, which are subjected to all kind of environments, service loads, and abusive conditions over the years. How safe are they?, Can we continue with same condition, then how long? Is it repairable/reusable if yes, then how? or reject them - how to come to a judgement of rejecting them. Tons of questions in the engineers mind need answers. Condition assessment of these structures requires an interdisciplinary approach of study of material, NDT, fracture mechanics & life assessment techniques.

FatigueDurability 2015, first time created a platform for multi-disciplinary discussion. We thank all for the overwhelming response. 600 people participated, 80+ papers presented, 25+ experts' shared expert keynote and more than 15 companies exhibited the technologies.

Moving along, as a follow up of last year conference, FatigueDurability India 2016 is planned this September 28-30th @ J N Tata Auditorium, Indian Institute of Science, Bangalore. FatigueDurability India 2016 brings experts from different part of the world to ensure rigorous technical experience for cross disciplinary interactions.

This 2nd International Conference & Exhibition brings industrial experts and academicians on a single platform to facilitate the exchange of ideas and advancements in the field of fatigue, durability and fracture mechanics and its applications. There will be an exhibition to showcase the technological advancements and paper presentation to share the knowledge with real life cases.

The Conference focuses on the covering wide spectrum of topics from design, engineering, testing and computational evaluation of the component / system for fatigue, durability and fracture mechanics aspects. There will be a forum of interdisciplinary discussion on working aspects related to material testing, evaluation of damage, NDT, failure analysis, FEM analysis, fatigue & fracture, processing, performance, reliability and so on. Participants are encouraged to bring their queries, problems and pose to the expert panel and derive the solution.

Design engineers, failure analysts, maintenance engineers, certification personnel, R&D professionals involved in auto, aero, power plants, marine, offshore, manufacturing, consumer durables, defense services, offshore structures, piping & pressure vessel, and general engineering sectors can participate in the conference & exhibition.

For more details about the conference login to www.2016.fatiguedurability.com. We request you to make use of this opportunity to interact, network with the professionals & experts in the field and be part of the FatigueDurability Community.

**We heartily welcome you to FatigueDurability India 2016.
Looking forward for your active Participation**

Chief Patron



Dr. A S Kiran Kumar

Secretary – Department of Space,
Chairman – Space Commission
Chairman – Indian Space
Research Organisation (ISRO)

Organizing Committee Chairman



Dr. S Seetharamu

Former Director,
Central Power Research Institute
Professor, BMS College of Engg.
Technical Director, ISIFS
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Convener



Dr. Raghunath W Khare

Head - Institute of Structural Integrity
& Failure Studies
Materials & Failure Expert
rw@fatiguedurability.com

Convener - Technical Committee



Dr. T Jagadish

Head of Department
Mechanical Engineering
Bangalore Institute of Technology [BIT]
jt@fatiguedurability.com

Conference Theme

- Advanced Techniques – in Fatigue, Durability and Fracture Studies
- Life Prediction methodologies for Structural Metals, Alloys, Polymer, Composites & Engineering Materials
- Thermo-Mechanical Fatigue
- Creep and Creep Fatigue Interaction
- Weld Fatigue Evaluation
- Vibrational Fatigue Evaluation
- Prediction of Cycles for Crack initiation & location
- Reliability assessment
- Fatigue of welds
- Virtual Prototyping and Virtual Testing
- Fatigue damage accumulation in cyclic loading situation
- Life assessment and extension strategies
- Damage tolerance procedure
- Effect of residual stresses on durability
- Calculation of stress intensity factors, critical crack size
- Effect of multi-site damage
- Mean time between failure (MTBF)
- Fatigue Modelling and Simulation
- Life Prediction Methodology, Software development
- Structural Health Monitoring and Prognostics
- Variable Amplitude Loads, Multiaxial & Mixed Mode Fatigue
- 3D non-planar crack propagation
- Fatigue Life Enhancement Techniques
- Cyclic Deformation and Crack Initiation
- Ageing aircraft

Registration Details

Registration Fee

Industry and R&D Institutions	: INR 5,000.00
Faculty & ISSE Members	: INR 4,000.00
Students & Research Scholars	: INR 3,000.00

Service Tax [14.5%] is applicable extra

For Foreign Delegates

Industry and R&D Institutions	: USD 77.00
Educational Institutions	: USD 62.00
Students & Research Scholars	: USD 47.00

Registration fee can be paid in cash/DD/cheque in favour of "FatigueDurability India 2016" payable at Bangalore and send the same along with Registration Form to

Convenor

Technical Secretariate

FatigueDurability India 2016

Institute of Structural Integrity and Failure Studies
28 (Old No 619/1), 2nd Floor, 36th Cross,
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Web : www.2016.fatiguedurability.com
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Glimpse of FatigueDurability India 2015



CONFERENCE VENUE

**J N Tata Auditorium
Indian Institute of Science
National Science Symposium Complex,
Sir CV Raman Avenue,
Bengaluru, Karnataka 560012**

CALL US FOR ANY QUERIES

Registration :

Ms Abhinanditha, info@fatiguedurability.com | 9902900722

Exhibition:

Mr. Arun , exhibition@fatiguedurability.com | 9900138009

Paper Presentation :

Ms. Nethra, nethra@fatiguedurability.com | 9900137005

Important Links

FatigueDurability India 2015 :
www.2015.fatiguedurability.com

FatigueDurability India 2016 :
www.2016.fatiguedurability.com

Distinguished Keynote Speaker



Recent advances in master S-N curve method for fatigue evaluation of welded structures

Professor Pingsha Dong

Professor, Naval Architecture and Marine Engineering
 Professor, Mechanical Engineering
 Director, Welded Structures Laboratory
 University of Michigan, Ann Arbor, MI

Honorary Key Note Speaker



Prognosis Analysis of Crack Growth in Non-Linear Problems

Padmashri Bhagavatula Dattaguru

Former Professor,
 Dept. of Aerospace Engineering,
 Indian Institute of Science, Bangalore

Special Keynote Speakers



Fracture mechanics based structural integrity of components – overview of material characterization and predictive modelling under environmentally assisted creep/fatigue condition

Professor Kamran Nikbin

Professor of Structural Integrity
 Faculty of Engineering,
 Department of Mechanical Engineering
 Imperial College, London



Application of acoustic emission method to fatigue fracture mechanics

Professor Kang Yong Lee

Professor
 State Key Laboratory of Structural Analysis
 for Industrial Equipment,
 Department of Engineering Mechanics,
 Dalian University of Technology, Dalian, P R China



Repair of Distortion-Induced Fatigue Damage in Steel Bridges

Professor Adolfo B. Matamoros

Peter T. Flawn Professor
 Department of Civil and Environmental Engineering
 University of Texas at San Antonio



Recent Developments in Plasticity and Ductile Fracture Modeling

Professor Xiaosheng Gao

Professor
 Department of Mechanical Engineering
 The University of Akron
 Akron, U.S

Invited Keynote Speakers



Fatigue durability of materials – effects of surface degradation

Dr. Anand K

Senior Engineering Manager
Materials, Repair and Component Development & Testing
GE Power, GE India Technology Centre, Bangalore India



Residual Life Assessment & Extension of Engineering Components

Dr. Rabindra Nath Ghosh

Chair Professor
Metallurgical & Materials Engineering Department
Indian Institute of Technology, Kharagpur, West Bengal



Design Challenges and Technology Trends for Aircraft Engines

Dr. Asim Ghosal

Consulting Engineer/Technologist
GE Aviation, John F Welch Technology Center
Bangalore, India



Behaviour of bi-metallic & stainless steel straight pipes under cyclic fracture-experimental investigations on real size components

Dr G. Raghava

Chief Scientist & Head, Fatigue & Fracture Laboratory
CSIR – Structural Engineering Research Centre
CSIR Campus, Taramani, CHENNAI, India



Corrosion Fatigue Behaviour of Nitrogen Alloyed Austenitic Stainless Steels

Dr. U. Kamachi Mudali

Outstanding Scientist &
Associate Director, - Corrosion Science and Technology Group
Associate Director, Materials-Process and Equipment Development Group
Indira Gandhi Centre for Atomic Research, Kalpakkam, Tamil Nadu, India



In Chase of Durability - A Historical Perspective

Dr. Ramesh Chandwani

Managing Director
Zentech International, UK



Realistic Fatigue Life Predictions based on computed SIF & Variable DOF approach

Dr. Omar Ibrahim

Managing Director
Process Optimization Corporation, USA



Dr. R Sundar*

Director
Bangalore Integrated Systems Solution [BISS], Bangalore

Call for Papers

FatigueDurability India 2016 invites technical papers from all Academicians/ individuals/companies associated with engineering design, analysis, testing, instrumentation, research on Fatigue Durability & Fracture Mechanics or related technologies.

The Authors are encouraged to submit paper on the following themes, but not limited to

- **New Technologies in Fatigue, Durability & Fracture Mechanics**
- **Material & Fatigue**
- **Thermo-Mechanical & Creep Fatigue**
- **Instrumentation & Life Prediction**
- **Computational Techniques & Life Prediction**
- **Engineering Design & Life Prediction**
- **Reliability**
- **Fracture Mechanics**
- **Other & Research**

Abstracts : before 30th June 2016 to abstract@fatiguedurability.com

Papers : before 30th August 2016 to papers@fatiguedurability.com

Authors Registration : before 30th August 2016 to authors@fatiguedurability.com

Exhibitors Profile

FatigueDurability India 2016, creates a platform for companies showcase breakthrough technologies and products in

- Fatigue, Fracture Testing Machineries
- Fatigue, Durability Instrumentation & Associated Technologies
- Computational Software & Technologies
- Material Testing Equipments, Machineries & Accessories
- Data Acquisition and Processing Technologies
- Fatigue, Durability, Fracture Research Centers
- Fatigue, Durability, Fracture Training Centers
- Design, Engineering Equipments and Associated Technologies
- Material, Metallurgy, Life Prediction Technologies
- Reliability Software and Associated Technologies
- Fracture Prediction Equipments, Testing Instruments and Associated Technologies
- Academic Research and Training Center
- Engineering Services and Research Companies
- Certification Agencies
- Consulting Firms

to list few, but not limited to.

Interested can send mail to exhibition@fatiguedurability.com

Contact

Arun Karthik
Exhibition Co-ordinator FatigueDurability India 2016
exhibition@fatiguedurability.com +91 9900138009



Organisers



Institute of Structural Integrity and Failure Studies

Institute of Structural Integrity and Failure Studies [ISIFS]

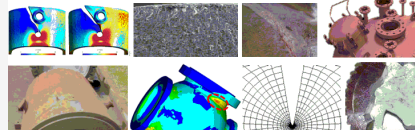
Institute of Structural Integrity and Failure Studies engages with the industry, academia and interested community in encouraging the knowledge sharing and news about advanced technology developments to make the engineering community actively participate in resolving the problems faced by industries and publishing the results to achieve competitive expertise in the global scene. ISIFS has a consortium of experts with decades of experience in solving the real time industrial – fatigue, fracture, failure problems associated with design, engineering, material, process related with insight of theoretical, analytical, experimental and computational simulation knowledge.

Institute of Structural Integrity and Failure Studies aims to promote, educate and encourage the research focusing on technologies associated with fatigue, fracture, failure, FEM, Life Assessment, Damage Mechanics, material modeling aspects and beyond covering **design to life assessment** and extension

Institute of Structural Integrity and Failure Studies understand the timely need in bringing different expertise people together and create a platform for research and knowledge sharing. Consulting Wing of Institute of Structural Integrity & Failure Studies brings a consortium of experts to address the requirements of industry.

For more details Visit : www.fatiguedurability.com

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India Science Foundation

www.indiasciencefoundation.com

India Science Foundation is a non-profit organisation working on promotion of Science, Engineering & Technology. India Science Foundation organises training programs, awareness programs, competitions, seminars, workshops for different learning level. It has been active in organizing Industry-Institution interactions and co-ordinating the students innovations with industrial requirements. India Science Foundation has been active in promoting basic science based research from grass route level to industrial research. India Science Foundation identifies talented science students, young engineers, innovators and their innovations. Award them for their excellence in the field and supports to make the technology commercialized, by bringing the interested industry to their door step.



www.isseindia.co.in

Indian Society of Systems for Science and Engineering (ISSE) is a professional body for interdisciplinary collaboration of systems science and engineering. ISSE is unique among the systems oriented institutions having the objective of bringing together scholars and practitioners from academic, business and R&D organizations for promoting the systems concept.

The society was started in 2010 at Vikram Sarabhai Space Centre (VSSC), with its Headquarters at Thiruvananthapuram It is a holistic approach for sharing the available resources and experience to enrich the system knowledge. The Bangalore chapter-ISSE was inaugurated by Shri A.S. Kiran Kumar, Chairman-ISRO on 25th May 2015. Shri P. Kunhikrishnan, Director, SDSC-SHAR, ISRO is the National President of ISSE and Dr. M V N Prasad, LPSC is the ISSE Bengaluru Chapter President.



www.iipe.co.in

The Indian Institution of Plant Engineers (IPE), a premier & highly prestigious professional body of plant Engineers founded in 1971 at is dedicated to improve the effectiveness, utilization and productivity with quality of Plant & Machinery in manufacture, distribution, service & other industries. IPE has grown to healthy Plant with around 17,000 members. Main objective of the Institution is to professionalize the plant Engineering through its various activities. Institution lays emphasis on acquainting and disseminating knowledge about various problems experienced and finding their solutions with the new developments and emerging approaches / technologies by the plant engineering professionals.



www.bit-bangalore.edu.in

The BANGALORE INSTITUTE OF TECHNOLOGY (BIT) is located in the heart of Bangalore, the “Electronic City” and “Silicon Valley” of India. The institution came into existence in August, 1979 under the auspices of Vokkaligara Sangha, Bangalore. The institute offers the Bachelor of Engineering (B.E.) Degree in Civil, Mechanical, Electrical and Electronics, Electronics and Communication, Computer Science, Instrumentation Technology, Telecommunication, Information Science and Engineering and Industrial Engineering and Management. B.I.T offers 9 undergraduate, 10 post graduate and research centers in all disciplines for carrying Ph.D degree, with a student strength of more than 4000.

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DHIO has an experienced pool of experts, engineers and scientists with decades of domain experience and expertise in applying state of the art simulation technology to in advanced Computer Aided Engineering Design, Analysis, Life Estimation and Optimisation Knowledge. DHIO Extends its support to Auto, Aero, Power Plant, Chemical Processing, Railways and General Engineering Companies to achieve complex engineering simulation needs in product/process/material design, redesign, engineering, reverse engineering, analysis and optimisation to save money, material & time.

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Glimpse of FatigueDurability India 2015



FATIGUE DURABILITY INDIA 2015



Bangalore, 20th May 2015. The International Conference Exhibition on Fatigue, Durability and Fracture Mechanics held at Auditorium, Indian Institute of Science, Bangalore. Organized for the occasion by A. S. Kulkarni, Chairman ISIFS, Chairman Commission, Indian Space Research Organisation, ISRO where participants under program of heavy load product a budget to obtain process evaluation in testing, observation making in the process, 3D printing technology and development in culture were focused for construction of future to product.

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ಇವೆಲ್ಲರ ಆಧ್ಯಕ್ಷರು. ಕೆ.ಎ. ಶಿರಣ್‌ಕುಮಾರ್ ಆಧ್ಯಕ್ಷರು



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Fatigue, Durability and Fracture Mechanics
28 - 30th May 2015, | N Teta Auditorium, Indian Institute of Science, Bangalore India

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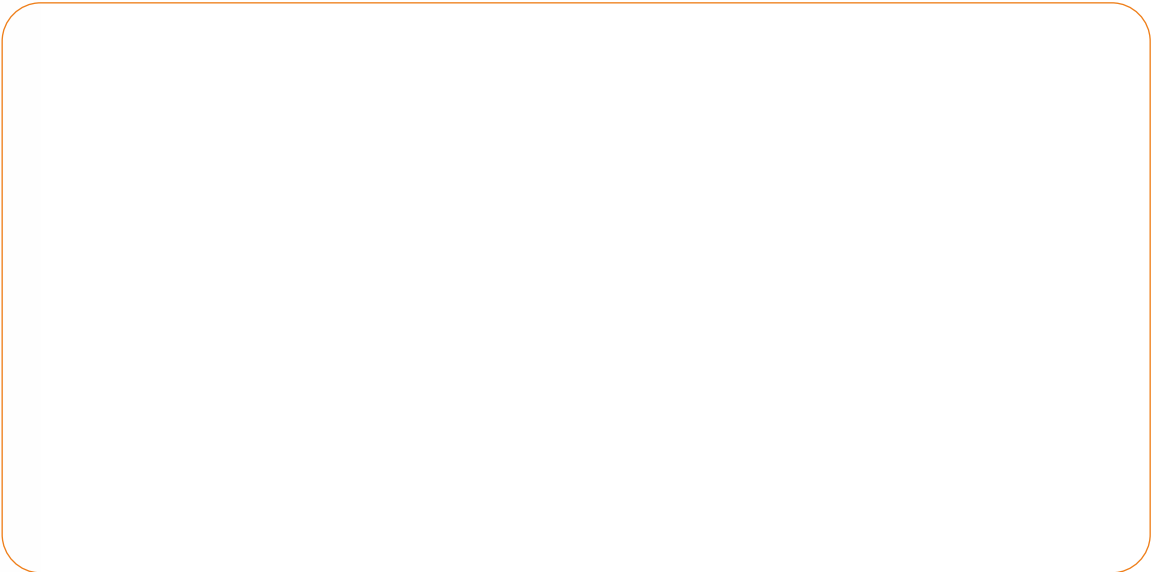
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Technical Secretariate
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