

# 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



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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 an answer. Condition assessment of these structures requires an interdisciplinary approach of study the 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+ paper 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](http://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  
[seetharamu@fatiguedurability.com](mailto:seetharamu@fatiguedurability.com)

### Convener



#### Dr. Raghunath W Khare

Head - Institute of Structural Integrity  
& Failure Studies  
Materials & Failure Expert  
[rw@fatiguedurability.com](mailto:rw@fatiguedurability.com)

### Convener - Technical Committee



#### Dr. T Jagadish

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

<b>Industry and R&amp;D Institutions</b>	<b>: INR 5,000.00</b>
<b>Faculty &amp; ISSE Members</b>	<b>: INR 4,000.00</b>
<b>Students &amp; Research Scholars</b>	<b>: INR 3,000.00</b>

Service Tax [14.5%] is applicable extra

### For Foreign Delegates

<b>Industry and R&amp;D Institutions</b>	<b>: USD 77.00</b>
<b>Educational Institutions</b>	<b>: USD 62.00</b>
<b>Students &amp; Research Scholars</b>	<b>: USD 47.00</b>

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,  
2nd Block, Rajajinagar, Next to Srinivasa  
Kalyana Mantapa, Bangalore-560010 India

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Mobile : +91 9900138009/9900137005

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Email : [info@fatiguedurability.com](mailto:info@fatiguedurability.com)

### 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](mailto:info@fatiguedurability.com) | 9902900722

### Exhibition:

Mr. Arun , [exhibition@fatiguedurability.com](mailto:exhibition@fatiguedurability.com) | 9900138009

### Paper Presentation :

Ms. Nethra, [nethra@fatiguedurability.com](mailto:nethra@fatiguedurability.com) | 9900137005

### Important Links

**FatigueDurability India 2015 :**  
[www.2015.fatiguedurability.com](http://www.2015.fatiguedurability.com)

**FatigueDurability India 2016 :**  
[www.2016.fatiguedurability.com](http://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



### **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



**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 A 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](mailto:abstract@fatiguedurability.com)**

**Papers : before 30th August 2016 to [papers@fatiguedurability.com](mailto:papers@fatiguedurability.com)**

**Authors Registration : before 30th August 2016 to [authors@fatiguedurability.com](mailto:authors@fatiguedurability.com)**

## Exhibitors Profile

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

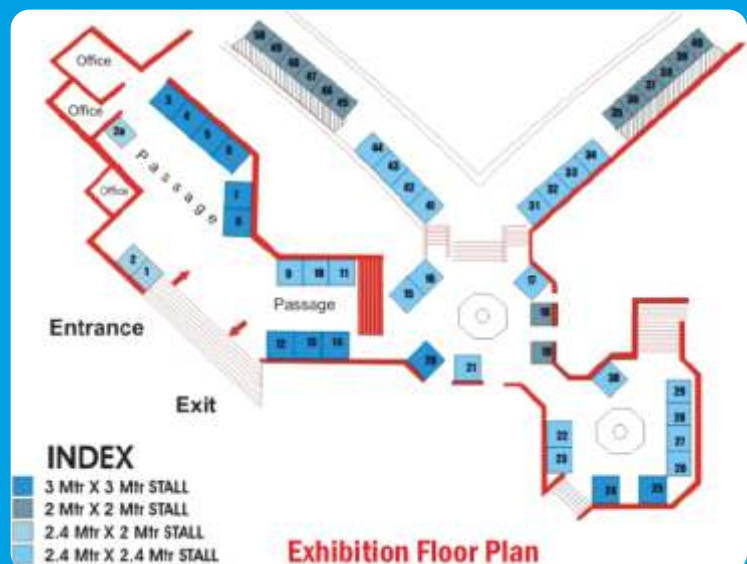
- Fatigue, Fracture Testing Machineries
- Fatigue, Durability Instrumentation & Associated Technologies
- Computational Software & Technologies
- Material Testing Equipments, Machineries & Accessories
- Data Acquisition and Processing Technologies
- Fatigue, Durability, Fracture Research Centers
- Fatigue, 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](mailto:exhibition@fatiguedurability.com)

### Contact

Arun Karthik  
Exhibition Co-ordinator FatigueDurability India 2016  
[exhibition@fatiguedurability.com](mailto:exhibition@fatiguedurability.com) +91 9900138009



Organisers



**Institute of Structural Integrity and Failure Studies**

**Institute of Structural Integrity and Failure Studies [ISIFS]**

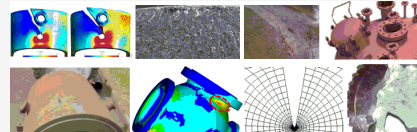
Institute of Structural Integrity and Failure Studies engages with the industry, academia and interested community in encouraging the knowledge sharing and news about advanced technology developments to make the engineering community actively participate in resolving the problems faced by industries 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](http://www.fatiguedurability.com)

Contact :  
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 rw@fatiguedurability.com | Ph/Fax: +91 80 49539628



**India Science Foundation**

[www.indiasciencefoundation.com](http://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 filed and supports to make the technology commercialized, by bringing the interested industry to their door step.



[www.isseindia.co.in](http://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 & was formally registered under the Travancore Cochin Literary Scientific and charitable societies registration act -1995



[www.iipe.co.in](http://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.



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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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# Glimpse of FatigueDurability India 2015



## FATIGUE DURABILITY INDIA 2015



Bangalore, 26th May 2015: The International Conference Exhibition on Fatigue, Durability and Fracture Mechanics held at Auditorium, Indian Institute of Science, Bangalore (IISc) for the occasion IV-A 3 Kista Kanna, Chairman ISIS, Chairman Commission, Indian Space Research Organisation, ISRO, who participated under program of heavy load product - Frigate to start process evaluation in testing, observation making in the process, 32 percent technology and development in culture were formed for construction of Indian Frigate.

## ಸಂಶೋಧನೆಯಿಂದ ಅಭಿವೃದ್ಧಿ



### FatigueDurability India 2015

International Conference & Exhibition on  
**Fatigue, Durability and Fracture Mechanics**  
26 - 30<sup>th</sup> May 2015, | N Teta Auditorium, Indian Institute of Science, Bangalore India

Settle best excellent design?

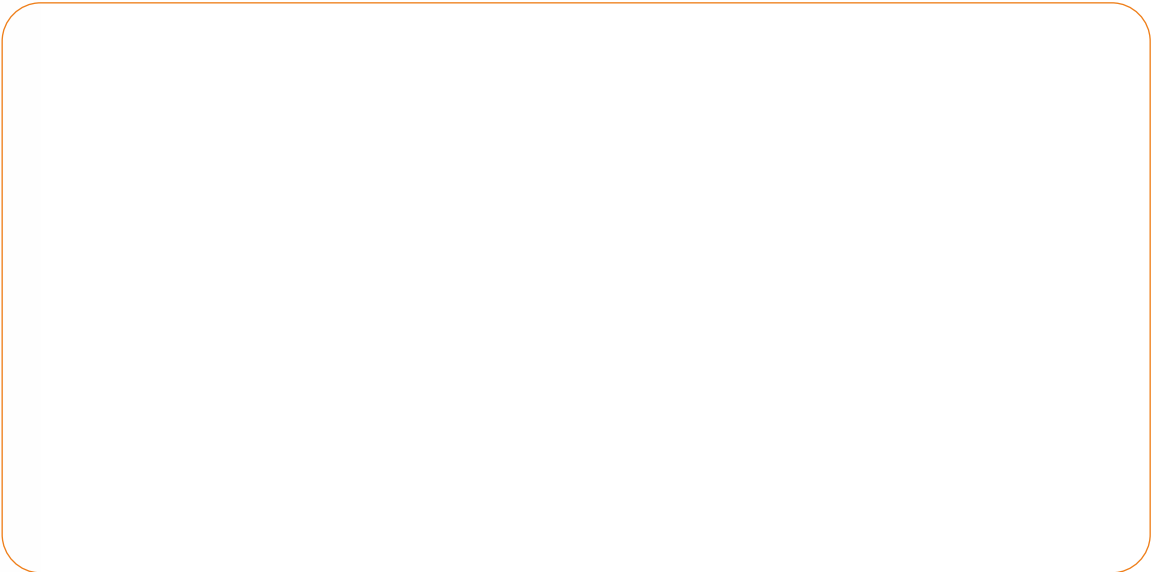
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To

Book Post



### Contact

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**FatigueDurability India 2016 - 2nd International Conference & Exhibition**  
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