

INTENSIVE WORKSHOP ON

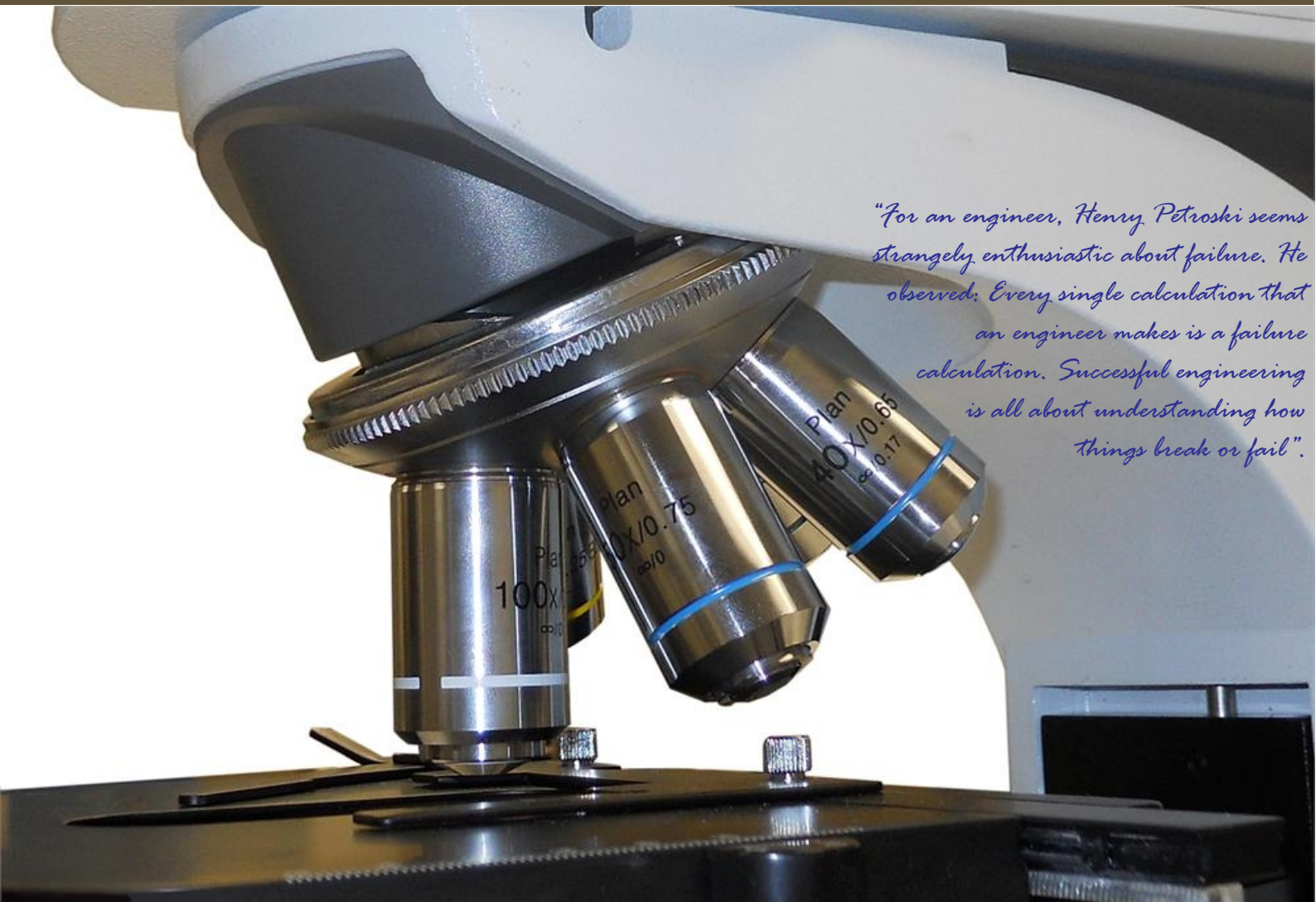
# MAFII-2015

**METALLOGRAPHIC ANALYSIS  
& FAILURE INVESTIGATION  
IN INDUSTRIES**  
**MARCH 13-14, 2015**

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**AT ITM UNIVERSE, TECHNICAL CAMPUS, VADODARA**



*"For an engineer, Henry Petroski seems strangely enthusiastic about failure. He observed: Every single calculation that an engineer makes is a failure calculation. Successful engineering is all about understanding how things break or fail".*

JOINTLY ORGANIZED BY



Vadodara



Institute of Technology & Management Universe



India Council & Gujarat Chapter

## VENUE OF THE WORKSHOP ON DAY.1



## VENUE OF THE WORKSHOP ON DAY.2



## ABOUT ORGANIZERS

### ABOUT ASM

ASM International is a premier educational society of metallurgists, materials scientists and technologists. ASM International is an interactive resource of materials information and a conduit for professional to meet, interact and share ideas. A worldwide Network led by Members, guided by Member Needs, and fueled by Members Participation. ASM enables its members to keep abreast of the latest technological and marketing trends. It offers invaluable opportunities to interact and learn from fellow materials engineers across the country and around the world, thus helping to stay competitive and sharpen creative vision. ASM offers excellent networking link, giving an instant access to insights and wealth of information through its technical books, acclaimed handbooks, engineering software and CD-ROMS. ASM is the information sharing network for anyone who works with metals, alloys, composites, ceramics, polymers and electronic materials.

ASM members make today's products profitable, and tomorrow's products possible. Our membership applies information and knowledge in exciting new applications that improve our quality of life in a million different ways, large and small - from today's aircraft, cars and microelectronics to making tomorrow's hydrogen economy possible.

As an engineering and scientific society, ASM International is led by members, guided by member needs and fueled by member participation. ASM members share information and ideas through international conferences and expositions, seminars and local meetings, through publications like Advanced Materials & Processes and the renowned ASM Handbook series, and online through the ASM Community website.

This workshop is organized by India Council & Gujarat Chapter of ASM International.

### ABOUT ITM UNIVERSE

ITM Universe Campus at Vadodara is situated on banks of Vishwamitri river amidst orchards greens of Mangoes & Sapodillas (Chickoos) owned by the Trust at village -Paldi, on halol highway. The Campus is at just 20 minutes drive from Vadodara airport and is in pollution free natural surroundings near Dhanora Lake. An industrial growth centre at Halol, 19 Kms from the campus, is coming up with huge investment and potential for jobs. ITM Universe through its UG/ PG level students will cater to the technical professional needs of National Industries. ITM Universe Vadodara campus is being constructed across 50 acres land in a phased manner. It started in September 2010, and will continue till 2017. By the end of 2017 this campus will have more than 10 lac square feet of constructional area and other additional spaces for amenities. A modern feel of the campus gives competition to its international counterparts. The campus is buzzing with the presence of contemporary sculptures created by well known artists from different parts of the world. These monumental sculptures and paintings within the campus add another dimension to the learning environment. ITM University Gwalior & Vadodara are known all over India for its co curricular and extra-curricular activities of high standards especially in the field of Hindustani Classical Music, Literature and Poetry, making the whole learning process holistic in its approach with cutting edge technologies and best practices of management, ITM Vadodara lay same emphasis on these vital policies to follow the tradition that has been followed at ITM University Gwalior, ITM Universe Vadodara, since its very first year of inception has hosted two international events. An International Sculptor Symposium and an International Conference on Corrosion in Chemical Industries. Other events include, A convention on Reforms in Engineering Education, an Arts Camp and many more curricular, extracurricular and co curricular activities which have always been a continuous part of the happening campus.

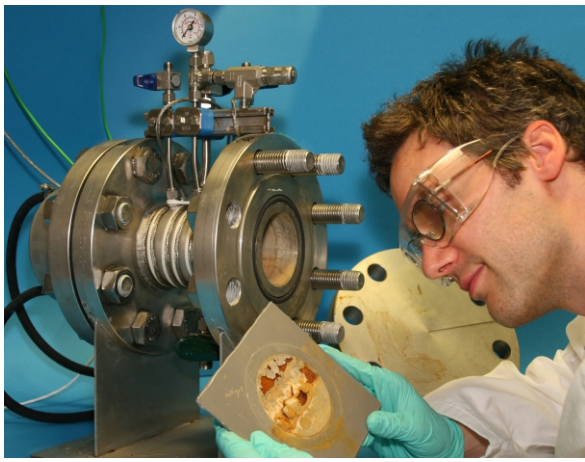
### ABOUT TCR

An ultimate destination for metallurgical solutions:

TCR Advanced Engineering is a service partner of TCR Engineering Services, a very reputed company established way back in 1973 by the great visionary late Sh. V. K. Bafna. TCR Advanced Engineering caters to the corrosion and metallurgical needs of the industries not only at Vadodara, a hub for chemical and petrochemical & fertilizer industries but also organizations world around. Company has a set-up comprising full-fledged advanced metallography and material characterization facilities at Vadodara, Gujarat.

TCR Advanced through its team of experts offers specialized services in the field of metallography and failure Investigation. The company provides asset integrity management, failure investigation of industrial plants and equipment, In-situ metallography, assessment of in-service degradation, components / parts indigenization, selection of materials, remaining life assessment (RLA) and fitness for service (FFS). TCR Advanced Engineering has a competent team of metallurgical and mechanical engineers, technicians and field staff working for in-house as well as on-site testing and investigation. Mr. Paresh U. Haribhakti (Managing Director) who is a Metallurgical Engineer and holds Master degree in Material Technology heads the company. He is having vast experience of more than a two decade in the field of R & D activities, failure investigation, damage assessments and RLA studies at global level. TCR Advanced has set up a full-fledged advanced testing division at Vadodara to meet with the industries need for testing such as raw material testing, material identification, microstructure examination for evaluation of material processing, chemical properties & physical properties of metallic materials. The testing division of TCR Advanced is NABL accredited as per international standard ISO/IEC-17025.





## INTENSIVE WORKSHOP ON METALLOGRAPHIC ANALYSIS & FAILURE INVESTIGATION IN INDUSTRIES

### About Workshop

#### METALLOGRAPHIC ANALYSIS

Characterization of engineering metals & alloys has been globally recognized, as an important step in quality assurance programs & in improving the productivity of industrial units involved in metal casting & fabrication processes, heat treatment and welding operations etc. The role of metallography in obtaining controlled microstructure for improving the service life of components is being increasingly appreciated.

Metallography as quality control measure is the latest entrant amongst the many standard techniques used for characterizing metals & alloys.

Knowledge of Metallography is, therefore, of interest to all engineers who either manufacture the components or use them in diverse technological fields.

Metallographic techniques are also being extensively used for providing reassurance of the state of health of components in service and in assessment of their remaining useful life and in programmes involving plant renovation & modernization.

Gujarat is home for variety of Petrochemical, Engineering and Metallurgical Industries, including their ancillaries. The programme is specially directed at their personnel involved in metallurgical activities & aims to provide them basic understanding of Metallography and its techniques, metallurgical structure development & microscopic techniques, knowledge of basic metallographic features of cast and wrought structures, grain size and inclusion rating, microstructures of various metals and alloys, including steels.

#### FOCUS

- Basics of metallography and microstructures.
- Role of metallography in failure investigation
- Basics of failure investigation
- Characterization of fractures
- Corrosion failures
- Industrial visit to Failure investigation and metallography laboratory.

#### FAILURE INVESTIGATION

Failure Investigation is the most positive discipline that adds immense value to the Industries and Society. By systematically identifying, exploring, understanding and finally solving the problems the failure analyst rewards the industry with improved products, reliability and safety.

This workshop on analysis of failure and corrective procedures with definitive objects will provide comprehensive coverage of every aspect of this critical field from engineering aspects of cause of failures to a detailed analysis of the major types of failures, solution to problems, etc.

#### FOCUS

1. Analysis Process: General Practices & Failure Modes.
2. Specific Failures: Corrosion & related failures, Failures in chemical Industry, Mechanical component failures & Composite degradation.
3. Failure Prevention: Through NDT Techniques.
4. Workshop: Metallography & Case studies.

#### What is Failure?

Though the word failure conjures up negative images-anything from a snapped bolt to major airline disaster, the consequences of failures are manifold such as: Equipment breakdown, Plant shutdown, Loss of production, injury and loss of life, Safety issues, Environmental hazards, etc.

Industries that are affected by failure are:

- Chemical
- Petrochemical
- Cement
- Fertilizers
- Engineering Industries
- Automobiles
- Power Plants
- Airline Industry, etc





### Faculties

The faculty shall consist of experts having extensive knowledge and industrial experience in their respective fields.

### Workshop Fees

(Inclusive of 12.36% Service Tax) Workshop Fees is

Participants from Industry : Rs.15,000/-

Participants from Academia & ASM Members : 10% discount

*Since the number of participants will be restricted, kindly register early to avoid last minute disappointment.*

### Incentives

- Registration Fees includes Workshop Material Kit, Lunch, Tea & Snacks.
- Early Bird entries on or before **05/02/2015** by 5:00 pm will get a discount of 10% & last date of registration is **05/03/15**
- Those organizations/companies who wish to sponsor more than three participants will be given 10% discount on total amount.
- The Workshop fees should be made through Bankers Cheque/DD in favor of "ITM Universe seminar & conference" payable at Vadodra.

### Day & Venue

**DAY.1 (13/03/2015)** - ITM Universe Technical Campus, Vadodra-Halol Highway, Paladi Village, 3 Kms from Jarod.

**DAY.2 (14/03/2015)** - a. Hotel Surya Palace, Opp, Parsi Agaryi, Sayajigunj, Vadodra.  
b. TCR Advanced Engineering Pvt. Ltd, Makarpura, Vadodra.



### PROGRAM- Day.1- ITM Universe

08:30 am- 09:30 am	Registration
09:30 am-11:00 am	Inauguration & Key Note Address
11:30am- 01:30 pm	Metallography Presentations
02:30 am-04:30 pm	Failure Investigation Presentations
04:45 pm - 05:45 pm	Case Study Presentation

### PROGRAM- Day.2- Surya Palace & TCR

09:30 am- 12:30 pm	Industrial Case Study Presentation- Group.1 & Visit to TCR- Group.2
01:30 pm- 03:30 pm	Industrial Case Study Presentation- Group.2 & Visit to TCR- Group.1
04:00 pm- 05:00 pm	Valedictory Function

### Organizing Committee

#### Patrons

- Mr.Ramashankar Singh, Chancellor, ITM University, Gwalior
- Mr.Pradeep Goyal, Past Trustee, ASM International, Mumbai
- Mr.Ravindra Pratap Singh Rathore, Trustee, ITM Universe.

#### Committee Members

- Prof. Dr. K. Baba Pai, Director, ITM Universe, **Chairman**.
- Mr. Prem Kumar Aurora, Chairman, ASM India Council, **Co-Chairman**
- Mr. P. U. Haribhakti- M.D, TCR Adv.Engineering, **Co-Chairman**
- Prof. Jyoti Mukhyopadhyay- IIT Gandhinagar
- Prof. V. S. Raja- IIT Bombay
- Dr. M. K. Totlani- Ex-BARC Mumbai
- Mr. P. K. Jain- Reliance Industries Limited, Dahej
- Mr. Y. S. Trivedi- L & T, Hazira
- Mr. Jayanti Sanghvi- Sanghvi Forging & Engineering, Vadodra
- Mr. Deepak Acharya- Inox CVA Limited, Kalol
- Mr. S. Gaitonde- Gujarat Fluorochemicals Limited, Ranjitnagar
- Mr. Pankaj Deval- ASM India Chapter, Mumbai
- Mr. Sandeep Pareek- ASM India Council, Mumbai
- Mr. Rajesh Bateriwal- ASM Gujarat Chapter, Ahmedabad
- Prof. B. A. Doshi, Head, Mech , ITM Universe, Vadodra
- Dr. S. D. Kahar- MSU, Baroda, Metallurgy Dept. Vadodra

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