



TSI NEWS LETTER

TSI Newsletter

July 2014 – DECEMBER 2015

From the desk of President – TSI



Dear Colleagues

I am pleased to convey my greetings to fellow Tribologists on behalf of new TSI Executive Committee (2015-2016). As you may be aware, TSI has been making pioneering efforts for promoting the awareness, knowledge and practice of Tribology in India over past two decades. The Society has been made significant progress during the tenure of the previous Executive Committee (2013-2014) and it is a privilege as well as a challenge for the current Executive Committee to continue the excellent work and take TSI to greater heights.

It is a matter of pride that TSI has been able to achieve a steady increase in its active membership and also reach out to a wider audience through its vibrant website. Our initiatives towards Tribology education and training through the Summer Schools have been receiving a great response from industry and academia alike. The new biennial event, National Tribology Conference (NTC) has become popular, as was evident from the participation in the last event at PES University in Bangalore.

We have already started planning for the next one of the NTC in IIT BHU in December 2016. The TSI journal Indian Journal of Tribology (IJT) has been relaunched with new teams for editorial and publication affairs. The operations of TSI Headquarters have also been substantially streamlined to provide improved services to all Members.

While we are justifiably proud of our achievements, we have some tasks on hand such as the strengthening of academia - industry interactions and involving the engineering student community in our Local Chapter activities in a significant way etc. We can say that our efforts are successful if we get the ultimate end users i.e. some of the key industry sectors to get involved in the TSI initiatives in a big way. Let us work towards that to pull them into our fold and make full use of the body of Tribology knowledge available with TSI members.

I call upon all of you to come forward and actively participate in these efforts.

With kind regards



(R SURESH)

President, Tribology Society of India

From the desk of Secretary – TSI



Dear Colleagues,

I have pleasure in communicating with you through this latest issue of our Newsletter. It is heartening to see that this Newsletter has become a regular channel of our communication. We are constantly trying to enhance the quality and contents of this Newsletter, introducing new features and topics. I urge all of you to come forward with new ideas and suggestions to enrich this publication further.

As you are aware, subsequent to the publication of our last issue of Newsletter, the second in a series of National Tribology Conference (NTC-2014) was successfully organized at PES University, Bangalore in December 2014. We are thankful to the organizing team at PES and all the participants, authors, sponsors and advertisers for their involvement and support in making this event a grand success. An Annual General Meeting of TSI was also held on the sidelines of this Conference during which a new Executive Committee was elected.

We have relaunched the TSI Journal - Indian Journal of Tribology under the stewardship of Prof Satish Kailas and will bring it out on a regular periodical basis as it was envisaged. Please send the technical papers and articles pertaining to your work to Prof Kailas for consideration for printing in the journal. It is also requested that you recommend it to your institutional library for subscription.

I invite all of you to come forward and join hands with other TSI Members to realize our exciting dreams about TSI in making it a vibrant forum for we Tribologists to interact. Let us strive to work towards organizing at least one activity every year related to disseminating knowledge related to this multi-faceted area of Tribology.

Please feel free to contact us on info@tribologyindia.org with your ideas and suggestions to make the society a good forum for interactions and working together.

With best wishes,



Ajay Kumar Harinarain
Secretary - TSI

2-DAY WORKSHOP ON “INDUSTRIAL TRIBOLOGY” AT PUNE (5 – 6 October 2015)

A 2-day Workshop on “Industrial Tribology” was organized on 5-6 October 2015 at the Department of Mechanical Engineering, All India Shri Shivaji Memorial Society's College of Engineering, Pune. It was conducted in association with TSI Mumbai-Pune Chapter and was supported by DUCOM Instruments Pvt. Ltd. and Prentice Hall of India (PHI). Savitribai Phule University at Pune has introduced 'Tribology', 'Industrial Tribology' 'Tribology and Surface Engineering' subjects at undergraduate and post-graduate levels in Mechanical and Production Engineering. This Workshop was planned to assist faculty members and PG/Ph.D students with exposure to current state-of-art in Tribology research and practice. In total 49 participants took part in this Workshop.

The Workshop started with a welcome address and context setting by Dr. B D Bachchhav, Coordinator of the Workshop. Dr. K R Jethani, Head of the Department, Chemical Engineering introduced the AISSM Society and the College of Engineering to participants. Mr. N. L. Soni, Outstanding Scientist & Head - Tribology at Bhabha Atomic Research Centre and Chief Guest for the Workshop, appreciated the efforts of organizing committee and appropriateness of the Workshop theme. He discussed various issues connected with water lubricated bearing and its use at BARC. Mr. S R Durugkar, Sr.DGM at L&T Hydrocarbon Engineering – Mumbai and Vice Chairman of TSI Mumbai-Pune Chapter, discussed about TSI activities. Mr. D Y Dhande presented the vote of thanks.

The Workshop was very fruitful. Apart from informative lectures by expert faculty from Industry and Academia, the deliberations resulted in several key recommendations covering advanced studies and research in Tribology and Industry-Institute collaboration. Here are some glimpses from the Workshop.



Mr. S. R. Durugkar presenting on TSI initiatives



Group photo of faculty and participants

TSI ASPIRES TO BRING THE WORLD TRIBOLOGY CONGRESS – 2021 TO INDIA!

In keeping with its vision of becoming a premier international professional body in the field of Tribology, the Tribology Society of India has taken the first step towards hosting the prestigious event, World Tribology Congress – 2021. TSI recently submitted the formal Expression of Interest (EoI) to the International Tribology Council (ITC), along with a preliminary proposal. As a next step, TSI has been invited to make a presentation to the ITC In-Session Meeting scheduled to be held in January 2016 at Esslingen, Germany.

Here is wishing TSI the Best of Luck in this great endeavor!

**7th TSI SUMMER SCHOOL IN TRIBOLOGY AT
IIPM GURGAON (8th – 12th JUNE 2015)**

The 7th Edition of prestigious “TSI Summer School in Tribology” (7th SST) was organized at IndianOil Institute of Petroleum Management (IIPM), Gurgaon during 8-12 June 2015. A total of 52 participants (29 from Academia and 23 from Industry) enrolled for the event.



Group Photograph of 7th SST on the inaugural day

The 7th SST was inaugurated on 8th June 2015 by Mr. Rajiv Tayal, Advisor - Department of Science & Technology (DST), who delivered the inaugural address. Mr. R. Suresh, President – TSI, delivered the presidential address and Mr. Harsh Sachdeva, GM – liPM delivered the welcome address for all dignitaries and participants. The event was financially supported by DST, Govt. of India. The venue, infrastructure support and board and lodging for academia was provided by liPM. IndianOil R&D Centre at Faridabad provided faculty for several sessions and also supported a laboratory visit by the participants.



Inaugural address by Mr. Rajiv Tayal



Presidential address by Mr. R. Suresh

The overall program included 19 technical lectures on diverse topics in Tribology by eminent experts, the field trip to IOCL (R&D) and 3 guest lectures. Prof. N Vedachallam, Distinguished Professor - ISRO, VSSC - Trivandrum delivered a much appreciated guest lecture on "Space Tribology" on the first evening. An examination was conducted on the last day of the Summer School and 32 out of the 52 participants, who took the examination, scored the qualifying marks.

During the concluding session Dr. S K Majumdar, GM(IL & Tribology), IndianOil (R&D) was the Chief Guest and delivered the valedictory lecture. Mr. Milind Kulkarni, Scientist - F, DST – Govt. of India, spoke on "DST's Expectation from SST Program". Mr. Sandeep Sharma, DGM (IIPM), gave his concluding remarks on SST at IIPM. The participation certificates were distributed to all the participants by the chief guest and other dignitaries during the concluding session. Mr. Kamal Mukherjee, GM - SECL, Korba and EC Member (TSI), delivered the vote of thanks.

(Complete details on the 7th SST, including the brochure and full technical program, can be viewed at the link: http://tribologyindia.org/education_course_archives.htm)

NATIONAL TRIBOLOGY CONFERENCE (NTC – 2014) AT PESIT- BENGALURU (15th – 17th DECEMBER 2014)

National Tribology Conference (NTC-2014), the flagship biannual event of TSI, was organized by PES University, Bengaluru during 15th-17th December, 2014. The conference was inaugurated by Dr. Muraleedharan, Director – Materials, Defence Research & Development Organization (DRDO) and well-attended by over 150 participants from industry, academia and research organizations from all over India.



The Grand Inaugural Function



Dignitaries with the organizing team

Two keynote lectures, eight invited talks and over fifty contributory technical papers were presented, with focus on topics related to bearings, lubrication, wear and tribo-materials. A conference proceeding with ISBN number, in association with Tata McGraw Hill Publishers, was released during inauguration. The conference also attracted several business houses to showcase their tribo-testing products by way of a technical exhibition. As part of conference, a cultural program featuring Carnatic music by popular music group "Lahari" was arranged to showcase the rich musical heritage of Karnataka.

TSI WELCOMES NEW MEMBERS

The following categories of new members have been enrolled with TSI during the period (April 2014 – November 2015):

- Life Members: 104
- Student Members: 50
- Institutional Member : 1

We extend a hearty welcome to all the new members and look forward to their active participation in and contribution to all TSI Initiatives.



Release of Conference Proceedings



A Keynote Lecture in progress

This conference was well supported by various industry houses and academic institutions by way of sponsorship. PES University, Chemizol Additives Pvt. Ltd. and Indian Oil Corporation Ltd. were Platinum sponsors while Union Bank of India, Hindustan Petroleum Corporation Ltd., Bharat Petroleum Corporation Ltd., Bruker Analytical Instruments and NBC Limited were Silver sponsors.

The valedictory address was delivered by Dr. Shrikant Joshi, Additional Director - ARCI on 17th December 2014. Mr. Naveen Pokhriyal's team from Indian Oil Corporation Ltd., won the Best Oral Presentation Award in the Industry category for the paper titled "High Temperature Properties – Composition Correlation of Greases". Mr. P S Suvin and team from IISc, Bengaluru won the Best Oral Presentation in the Academic category for the paper titled "Comparative study of influence of coconut oil based cutting fluid, commercial cutting fluid and dry cutting on cutting force measurements in drilling operation". M/s DUCOM was adjudged the Best Exhibitor.

As part of NTC-2014, a pre-conference Workshop on Tribology was conducted on 13th and 14th December 2014 and these were well-attended by over 65 participants from all over India. The Workshop was inaugurated by Prof. A. Sethuramiah, formerly of IIT Delhi. A wide range of topics related to Tribology, including fundamentals and practical demonstrations of thermal spraying, was covered during the Workshop. The valedictory address for the pre-conference Workshop was delivered by Dr. Ing B V A Rao, formerly of IIT Madras.

FACULTY DEVELOPMENT PROGRAM AT BENGALURU (11th DECEMBER 2014)

A one-day Faculty Development Programme (FDP) on "Advances in Bio-Lubricants and Cutting Fluids" was organized by Department of Mechanical Engineering, Malnad College of Engineering, Hassan in association with Tribology Society of India (TSI) – Karnataka Chapter and DUCOM Instruments on 11th December 2014 at Bengaluru. The FDP event received a good response with 34 participants, all the participants being teaching faculties from engineering colleges across Karnataka.

The FDP aimed at exploring and strengthening the potential of utilizing the plentifully available bio-Lubricants and recent developments in this area, in order to provide opportunities to faculty members and research scholars to enrich their teaching skill. Two technical talks were organized in morning session. Dr. Radhakrishnan M., a Retired Scientist from CMTI, Bengaluru, delivered an interactive lecture on Eco-Friendly Hydraulic Fluids. He highlighted the adverse effects of mineral oil based lubricants on the environment and the importance of bio-degradable oils in the current scenario. Mr. Amit Ganguli, Senior Technology Manager, DUCOM Instruments, delivered an informative lecture on Tribo-testing of bio-lubricants and cutting fluids. In the afternoon session an Industry visit to DUCOM facilities was organized. The participants visited the workshop, testing department and R&D Centre, to get an overview of a range of Tribo-testing equipment and their applications in various fields.



Dignitaries at the Inaugural Session



A Group Photo of faculty and participants

ORIENTATION PROGRAM ON TRIBOLOGY AT NPCIL – MUMBAI (4th– 5th DECEMBER 2014)

An Orientation Programme on Tribology (OTP – 2014) was organized at Nuclear Power Corporation of India Limited (NPCIL), Mumbai during 4th- 5th November 2014. Hosted by NPCIL, this programme attracted approximately 50 participants from NPCIL HQ, Project Sites and BARC. The two-day program had an impressive array of plenary speakers from Academia, Industry, PSUs and Research Centres across India. The deliberations covered basics of Tribology, failure investigation of bearings, vibration signature analysis and specialized topic like Space Tribology.



Talk by Mr. S G Ghadge, Director (T), NPCIL



Talk by Mr. A. K. Mehta, ED (TSI)

SEMINAR ON FRICTION, LUBRICATION & WEAR AT BENGALURU (26th SEPTEMBER 2014)

A one-day seminar on “Friction, Lubrication and Wear (FLW-2014)” was organized by the Department of Mechanical Engineering, Sir M. Visvesvaraya Institute of Technology, Bengaluru on 26th September 2014, in association with Tribology Society of India (Karnataka Chapter). This seminar was for the benefit of students and teaching faculty of Mechanical Engineering at the Institute. The keynote lecture was delivered by Mr. D. Sarathy, Vice President, Kennametal India Limited, Bangalore. Eminent speakers from industry and academic institutions delivered lectures on the topics such as Futuristic Bearings, Basics of Lubricants and Lubrication, Advancement in Tribology Instruments, and Tribology of Metal Matrix Composites. About 86 participants from VTU affiliated engineering colleges including undergraduate / postgraduate students and teaching faculty of Mechanical Engineering attended this seminar.



The Inaugural Session under way



Address by Mr. D. Sarathy, VP (Kennametal India)

IN FOCUS: TRIBOLOGY LABORATORY, DEPARTMENT OF MECHANICAL ENGINEERING, INDIAN INSTITUTE OF TECHNOLOGY (BANARAS HINDU UNIVERSITY), VARANASI

The Department of Mechanical Engineering is one of the largest and oldest departments of IIT (BHU). The department offers undergraduate, postgraduate and Ph.D. degrees respectively. Tribology is one of the thrust areas of research work in the department. Several faculty members are involved in various aspects of Tribology that includes Tribology of materials, lubrication, contact modeling and wear mechanisms. The specialized area of research topics, such as Bio and Nano-Tribology, and Tribology of MEMS / NEMS are also undertaken by the department. The faculty members from other department such as Chemistry, Ceramics and Metallurgical Engineering are also involved in conducting research work on various aspects of Tribology. The faculty members have undertaken different research projects from various funding agencies like BARC, DST, CSIR, UGC etc. Also, the faculty members are having collaboration work with international laboratories / Universities like BAM - Berlin, Germany, SKL, Tsinghua University - Beijing and Newcastle University, the U.K.

The major research areas in Tribology are as follows:

- Development of composite materials and their tribological characterisation: Macro, Micro and Nano etc.
- Development of lubricants and additives, Nano additives
- Wear Resistant Coatings
- Bio Tribology

Resources available for Testing and Characterization:

- Pin-on-Disc set-up
- Reciprocating Wear Test Rig
- Air Jet Erosion Rig
- Rubber Wheel Abrasion Test Rig
- Galling Tester
- Four Ball Tester
- Hardness Tester
- Micro-hardness Tester

Contact

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Rubber Wheel
Abrasive
Wear Test Rig



Galling Tester



Reciprocating Wear
Test Rig



Four Ball Tester

TSI EXECUTIVE COMMITTEE (2015-2016)

Sl. No.	Name	Role	Affiliation
1	Mr. R. Suresh	President	IndianOil R&D Centre, Faridabad
2	Prof. Satish V Kailas	Vice President	Indian Institute of Science, Bangalore
3	Dr. Barun Chakrabarti	Vice President	L&T Hydrocarbon Engg. Ltd., Mumbai
4	Mr. Ajay Kumar	Secretary	IndianOil R&D Centre, Faridabad
5	Dr. Pankaj Bhatnagar	Treasurer	IndianOil R&D Centre, Faridabad
6	Prof. C. S. Ramesh	Joint Secretary	Alliance Uni., Bangalore
7	Prof. Satish C. Sharma	Joint Secretary	Indian Institute of Technology, Roorkee
8	Mr. R. Mahapatra	Joint Treasurer	IndianOil R&D Centre, Faridabad
9	Dr. R. K. Malhotra	EC Member	Formerly Director-IndianOil R&D Centre
10	Dr. S. S. V. Rama Kumar	EC Member	IndianOil R&D Centre, Faridabad
11	Mr. Milind Kulkarni	EC Member	Department Of Science & Technology, New Delhi
12	Mr. Kamal Mukherjee	EC Member	SECF Ltd., Korba
13	Dr. Sudhir Rashingkar	EC Member	RCG Instruments (India) P Ltd., Pune
14	Prof. J. Bijwe	EC Member	ITMMEC, IIT Delhi
15	Prof. Ram Turaga	EC Member	Indian Institute of Science, Bangalore
16	Prof. A. P. Harsha	EC Member	IIT Banaras Hindu University, Varanasi
17	Mr. N. L. Soni	EC Member	BARC, Mumbai
18	Mr. N. M. Dube	EC Member	DUCOM , Bangalore
19	Mr. S. R. Durugkar	EC Member	L&T Hydrocarbon Engg. Ltd., Mumbai
20	Prof. Mayank Tiwari	EC Member	Indian Institute of Technology Patna, Bihar
21	Dr. S. V. Joshi	EC Member	University West, Deptt. Of Engg. Sci., Sweden.
22	Mr. Srini Dampur	EC Member	NEI Ltd. Jaipur
23	Dr. T. Singh	EC Member	Hindustan Petroleum Corp. Ltd., Mumbai
24	Mr. J. Samuel	EC Member	Hindustan Petroleum Corp. Ltd., Mumbai
25	Mr. T. L. Sethuram	EC Member	Lubrizol India Private Limited, Mumbai
26	Mr. A. K. Mehta	ED - TSI	Tribology Society of India, Faridabad

- ❖ *All Members are invited to send their publication materials, suggestions and feedback to Mr. A. K. Mehta, ED (TSI) at the email ID: info@tribologyindia.org*
- ❖ *Compiled by Mr. A. K. Mehta, ED (TSI) and Edited by Dr. Barun Chakrabarti, Vice President (TSI), on behalf of Tribology Society of India. This publication is for free circulation among TSI Members.*

