

# NTC 2016

Venue: IIT (BHU) Varanasi: Duration: December 8-10, 2016

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## Programme Schedule

<b>Day 1</b> <b>8<sup>th</sup> December, 2016</b>
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- 08:00 – 10:00 Hr. Registration**  
**09:30 – 11:30 Hr. Inaugural Session followed by High Tea**

### **Plenary Session I** **(11:30 – 13:00 Hr.)**

- 11:30 – 12:15 Hr.** Title: Materials Aspects of Dry Sliding Wear  
Speaker: Prof. Subrata Ray, Distinguished Visiting Professor, IIT Mandi
- 12:15 – 13:00 Hr.** Title: Friction Management through Tribological Intervention  
Speaker: Dr. S K Mazumdar, Indian Oil (R & D)
- 13:00 – 14:00 Hr. Lunch Break**

### **Technical Session I : Bearing** **(14:00 – 15:30 Hr.)**

#### **Technical Session 1A, Venue: G5**

<b>S.No.</b>	<b>Abstract ID &amp; Title</b>	<b>Session Chair: Speaker</b>	<b>Affiliation</b>
1.	<b>NTC2016-562:</b> Performance analysis of a 3-lobe textured slot-entry hybrid journal bearing system.	S. C. Sharma	Dept. of Mechanical & Industrial Engg., IIT Roorkee
2.	<b>NTC2016-504:</b> To study performance parameters of hydrodynamic journal bearing operating under wear.	Sanjay K Sharma	Dept. of Mechanical Engineering, SMVDU, Katra
3.	<b>NTC2016-505:</b> Performance evaluation of hydrodynamic journal bearings considering thermal and instability effects.	ShubhamSuryawanshi	Dept. of Mechanical Engineering, MET's IOE, BKC, Nasik, SPPU, Pune, India
4.	<b>NTC2016-510:</b> Bearing degradation	Akhand Rai	Dept. of Mechanical &

process prediction based on principal component analysis and regression trees.

Industrial Engg., IIT Roorkee

5. **NTC2016-590:** Performance of hybrid tilted and textured thrust pad bearing. Saurabh K Yadav

Dept. of Mechanical & Automobile Engg, Graphic Era University, Dehradun

**Technical Session 1B, Venue: G6**

**Session Chair:**

1. **NTC2016-572:** Performance characteristics of a semi active journal bearing for different ovality ratio.

Raghu Yogaraju

Dept. of Mechanical Engineering ,BMS College of Engineering, Bengaluru

2. **NTC2016-501:**A study of misaligned non-Newtonian lubricated two lobe hybrid journal bearing.

: Dr.P.B.Kushare

Dept. of Mechanical Engg ,K.K.Wagh Institute of Engg Education and Research, Nashik

3. **NTC2016-516:** Effect of geometric irregularities of journal on the performance of four pocket hybrid journal bearing with different geometries of pockets.

Arvind K Rajput

Dept. of Mechanical Engg, SOE, Shiv Nadar University, Greater Noida, UP

4. **NTC2016-530:** Bearing field failure analysis of an alternator.

J SBasavaraja

Dept. of Mechanical Engg ,BMS College of Engg, Bengaluru

5. **NTC2016-526:** Study of fit effect on deep groove ball bearing internal clearance with tolerance analysis.

P Duddumpudi

Mahindra École Centrale, Hyderabad

**Technical Session 1C, Venue: G7**

**Session Chair:**

1. **NTC2016-557:** Performance of circular recessed hydrostatic tilted thrust pad bearing operating with couple stress lubricant.

Vivek Kumar

Dept. of Mechanical & Industrial Engg., IIT Roorkee

2. **NTC2016-514:** A study of a textured slot-entry hybrid journal bearing system operating with power law lubricant.

Chandra B. Khatri

Dept. of Mechanical & Industrial Engg., IIT Roorkee

3. **NTC2016-531:** Analysis of partial slip step-texture journal bearing.

T V V L N Rao

Dept.of Mechanical-Mechatronics Engg, The LNM Institute of Information Technology, Jaipur

4. **NTC2016-518:** Experimental analysis on improvement of the dynamic load rating of deep groove ball bearing.

Deepak Borse

S.G.G.S. Institute of Engineering & Technology, Nanded

5. **NTC2016-547:** To investigate effect of misalignment on the performance of hydrodynamic journal bearing. Ramesh V Bhandare Dept. of Mechanical Engg, K.K.Wagh Institute of Engg Education and Research, Nashik

**15:30 – 15:45 Hr. Tea Break**

**Technical Session II : Coating & Modelling  
(15:45 – 17:15 Hr.)**

**Technical Session 2A, Venue: G5**

**Session Chair:**

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|----|---|--|--|
| 1. | <b>NTC2016-543:</b> Thermally sprayed CeO <sub>2</sub> doped Al <sub>2</sub> O <sub>3</sub> coating on AZ91 alloy.            | Deepak Kumar                             | Machine Dynamics and Maintenance Engineering Centre, IIT Delhi |
| 2. | <b>NTC2016-538:</b> Surface modification of MDPE pipeline for failure prevention through metallic coating.                    | Vinay Pratap Singh/<br>Ehteshamur Rahman | Dept. of Mechanical Engg, H.B.T.U., Kanpur                     |
| 3. | <b>NTC2016-552:</b> Wear and corrosion study of EL NI-P- ZNO nano-composite coatings.   | Sulaxna Sharma                           | Department of (Chemistry) AS&H, THDC- IHET, Tehri              |
| 4. | <b>NTC2016-569:</b> Synthesis and characterization of titanium and titanium nitride deposition on high speed steel substrate. | M.R. Kumar                               | Dept. of Metallurgical Engg, IIT (BHU) Varanasi                |

**Technical Session 2B, Venue: G6**

**Session Chair:**

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|----|---|------------|--|
| 1. | <b>NTC2016-561:</b> High temperature erosion behavior of weld overlay hard coating.   | K. R. Naik | Materials Technology Division, Central Power Research Institute, Bangalore |
| 2. | <b>NTC2016-524:</b> Influence of C <sup>+</sup> ion implantation on tribological response of magnetron sputtered TiC films. | N. Kumar   | Materials Science Group, IGCAR, (HBNI), Kalpakkam                          |
| 3. | <b>NTC2016-529:</b> Silt erosion performance of HVOF processed tungsten carbide coatings.                                   | T. Pramod  | Central Power Research Institute, Bangalore                                |
| 4. | <b>NTC2016-577:</b> Corrosion behavior of surface modified high carbon steel using high velocity oxygen fuel coating.       | Sudhakar I | Dept. of Mechanical Engg, MVGRCE(A), Vizianagaram                          |

**Technical Session 2C, Venue: G7****Session Chair:**

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|----|---|-----------------|--|
| 1. | <b>NTC2016-512:</b> Multi-objective optimization of spur-gearbox considering tribological aspects using NSGA-II.                                  | P Ramkumar      | Dept. of Mechanical Engg, IIT Madras   |
| 2. | <b>NTC2016-532:</b> On the limitation of fractal definition in surface roughness characterization.  | Sandip Panda    | Dept. of Mechanical Engg, IIT Kharagpur                                      |
| 3. | <b>NTC2016-528:</b> Mathematical modelling & simulation of deep groove ball bearing in gearbox application.                                       | Daksh Dhingra   | Dept. of Mechanical Engg, YMCA University of Science & Technology, Faridabad |
| 4. | <b>NTC2016-570:</b> Statistical analysis of dry sliding wear and friction behavior of Cu/SiC sintered composite.                                  | HiralalBhowmick | Dept. of Mechanical Engg, Thapar University, Patiala                         |
| 5. | <b>NTC2016-544:</b> Development of two body abrasive wear models of Al 6082 hybrid composites using statistical analysis.                         | Kaushik N.Ch    | Dept. of Mechanical Engg,NIT Warangal  |
| 6. | <b>NTC2016-539:</b> Application of Taguchi technique and ANOVA to experimental study of tribological behaviour of material pairs with case study. | K N Ramchandra  | Dept. of Mechanical Engg, RIT, Sakharale, Sangali                            |

<b>Day 2</b> <b>9<sup>th</sup> December, 2016</b>
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**Plenary Session II**  
**(09:30 – 11:00 Hr.)**

- 09:30 – 10:15 Hr.** Title: Niobium Carbide – the unknown hard material – Microstructure, Properties and Tribology.  
Speaker: Dr. Rolf Wäsche
- 10:15 – 11:00 Hr.** Title: Triboluminescence and X-Ray generation.  
Speaker: Dr. S. K. Roy Chowdhury
- 11:00 – 11:15 Hr.** **Tea Break**

**Technical Session III : Lubrication**  
**(11:15 – 13:00 Hr.)**

**Technical Session 3A, Venue: G5**

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| 1. | <b>NTC2016-535:</b> Evaluation of green and commercial cutting fluids using tool chip Tribometer.  | P. S. Suvin<br>Centre for Product Design And Manufacturing, IISc Bangalore |
| 2. | <b>NTC2016-563:</b> Studies on frictional properties and film formation tendency of lubricating oils using reciprocating test machine.     | R.Chaudhary<br>Indian Oil Corporation Limited, R & D Centre, Faridabad     |
| 3. | <b>NTC2016-576:</b> Experimental study on the tribological characteristics of Al <sub>2</sub> O <sub>3</sub> and graphite nano lubricants. | N.Ravi Kumar<br>Dept. of Mechanical Engg, MVGRCE(A), Vizianagaram          |
| 4. | <b>NTC2016-553:</b> Effect of castor oil as bio-lubricant on tribological characteristics of EN31 steel.                                   | ManikNathe<br>Dept. of Mechanical Engg, SVIT Chincholi, Nashik             |
| 5. | <b>NTC2016-560:</b> Experimental evaluation of lubrication performance of engine oils in contact fatigue behavior of steel.                | P Thapliyal<br>UTU Dehradun and Army Cadet College, IMA, Dehradun          |

**Technical Session 3B, Venue: G6**

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|----|---|---|
| 1. | <b>NTC2016-573:</b> Tribological evaluation of P, S and halogen-free doped zinc oxide nanoparticles as antiwear additives.                                  | Kalyani<br>Department of Chemistry, IIT (BHU), Varanasi   |
| 2. | <b>NTC2016-545:</b> Study of film forming characteristics of marine lubricating oils under simulated conditions.  | S. Bhadhavath<br>Indian Oil Corporation Limited, R & D Centre, Faridabad                                      |
| 3. | <b>NTC2016-527:</b> Performance evaluation of transmission efficiency of gear lubricants.   | K.N. Yadav<br>Indian Oil Corporation Limited, R & D Centre, Faridabad   |
| 4. | <b>NTC2016-506:</b> Friction, noise and vibrational response of reduced graphene oxide blended lithium grease under the point contact.                      | Jayant Singh<br>Industrial Tribology, Machine Dynamics and Maintenance Engineering Centre (ITMMEC), IIT Delhi |
| 5. | <b>NTC2016-559:</b> Comparative assessment on Tribological investigation of Amine grafted Hexagonal Boron Nitride and Graphitic Carbon Nitride nano fluids. | G D Thakre<br>Scientist, Advanced Tribology Research Centre, CSIR - Indian Institute of Petroleum, Dehradun   |
| 6. | <b>NTC2016-589:</b> Synthesis of surfactant-modified Ceria-Zirconium hybrid   | Chaco Prano Kosy<br>Dept. of Mechanical Engg, Saintgits College of Engineering, Kottayam                      |

nanoparticles and evaluation of their tribological properties as an additive in coconut oil at elevated temperatures.

**Technical Session 3C, Venue: G7**

**Session Chair:**

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|----|---|-------------------|--|
| 1. | <b>NTC2016-583:</b> Long alkyl chain-functionalized MoS <sub>2</sub> Nano sheets as high performance lubricant additive.      | Sangita Kumari    | CSIR-Indian Institute Of Petroleum, Dehradun                   |
| 2. | <b>NTC2016-584:</b> Alkylamine-functionalized hexagonal boron nitride as a novel nano-additive for tribological applications. | OP.Sharma         | CSIR-Indian Institute Of Petroleum, Dehradun                   |
| 3. | <b>NTC2016-568:</b> Performance evaluation of compressor lubricants for endurance and energy efficiency.                      | Inder Singh       | Indian Oil Corporation Limited, R & D Centre, Faridabad        |
| 4. | <b>NTC2016-574:</b> Influence of nano-particles of solid lubricants on tribo-performance of PAEK composites.                  | Jitendra N Panda  | Machine Dynamics and Maintenance Engineering Centre, IIT Delhi |
| 5. | <b>NTC2016-580:</b> Some therapeutic quinolone as derivatives antiwear lubricant additives in polyethylene glycol.            | D.K Verma         | Department of Chemistry, IIT (BHU), Varanasi                   |
| 6. | <b>NTC2016-592:</b> Towards synergism in tribo-performance using combination of Nano-PTFE and graphite particles in oil.      | Prashant Gangwani | Machine Dynamics and Maintenance Engineering Centre, IIT Delhi |

**13:00 – 14:00 Hr. Lunch Break**

**Technical Session IV : Lubrication & Bearing  
(14:00 – 15:30 Hr.)**

**Technical Session 4A, Venue: G5**

**Session Chair:**

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|----|---|--------------|--|
| 1. | <b>NTC2016-582:</b> 3, 5-di-tert-butyl-4 hydroxybenzaldehyde functionalized graphene oxide as a novel multi-functional additive for lubricant applications. | Ajay Chouhan | CSIR-Indian Institute Of Petroleum, Dehradun |
| 2. | <b>NTC2016-585:</b> Fatty acid-constituted halogen free ionic liquid environmental sustainability to enhanced tribo-performance.                            | Amzad Khan   | CSIR-Indian Institute Of Petroleum, Dehradun |

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|----|--|---------------|---|
| 3. | <b>NTC2016-536:</b> Energy efficient reduced graphene oxide antiwear additives: effect of dopant and mechanism of effective lubrication under boundary conditions. | V. Jaiswal    | Department of Chemistry, IIT (BHU), Varanasi                      |
| 4. | <b>NTC2016-564:</b> Preparing nano-lubricants- role of medium for dispersion of additive-particles.  | Manoj K Gupta | Machine Dynamics and Maintenance Engineering Centre, IIT Delhi    |
| 5. | <b>NTC2016-515:</b> Tribological study on CeO <sub>2</sub> nanoparticles as a biolubricant additive.   | A.P Harsha    | Dept. of Mechanical Engg, IIT (BHU), Varanasi                     |
| 6. | <b>NTC2016-586:</b> Comparison between used mineral based and used bio-lubricant on journal bearing.   | Puneet Sidhu  | Dept. of Mechanical Engg, Beant College of Engg & Tech, Gurdaspur |

**Technical Session 4B, Venue: G6**

**Session Chair:**

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|----|--|----------------------------|--|
| 1. | <b>NTC2016-503:</b> On the performance of hydrodynamic step-slider bearing with surface texture.   | Ram Turaga / Shakti Ranjan | Office of Development and Alumni Affairs, IISc, Bangalore  |
| 2. | <b>NTC2016-555:</b> Dynamic analysis of rotor system supported on cylindrical roller bearings.   | S. P. Chippa               | Dept. of Mechanical Engg, Vishwakarma Institute of Technology, Pune                                    |
| 3. | <b>NTC2016-554:</b> Influence of operating parameters on subsurface stresses in elasto hydrodynamically lubricated line contacts.                    | S. P. Chippa               | Dept. of Mechanical Engg, Vishwakarma Institute of Technology, Pune                                    |
| 4. | <b>NTC2016-502:</b> Performance of asymmetric hole-entry hybrid journal bearing using CFV restrictor under micropolar lubrication.                   | Nathi Ram                  | Dept. of Mechanical & Automation Engineering, Indira Gandhi Delhi Technical University for Women Delhi |
| 5. | <b>NTC2016-581:</b> Load carrying capacity and friction force investigations in flared journal bearing considering isotropic surface roughness.      | :P. Ganai                  | Department of Mechanical Engineering, IIT Delhi  |
| 6. | <b>NTC2016-588:</b> Three dimensional, thermo-hydrodynamic numerical analysis of a journal bearing using fluid structure interaction (FSI) approach. | Hanoca P                   | Joseph Cottage, Rakshnapuram, Hassan   |

**15:30 – 15:45 Hr. Tea Break**

**Poster Session**  
**(15:45 – 17:00 Hr.)**

**Venue:**

**Day 3**  
**10<sup>th</sup> December, 2016**

**Technical Session V : Wear**  
**(10:00 – 11:30 Hr.)**

**Technical Session 5A, Venue: G5**

**Session Chair:**

1. **NTC2016-509:** High temperature sliding wear characteristics of AA5052/TiB<sub>2</sub> in situ Composite. Narendra Kumar Dept. of Mechanical Engineering, B.I.E.T, Jhansi
2. **NTC2016-550:** A comparison of wear parameters for aluminum and steel materials during pin-on-disc tribotesting. Mayank Tiwari Dept. of Mechanical Engineering, IIT, Patna
3. **NTC2016-546:** Dry Sliding wear behaviour and its mechanisms of Alumina – titania (Al<sub>2</sub>O<sub>3</sub>-40TiO<sub>2</sub>) on IN-718 Super alloy at 500°C. KG.Thirugnanasambantham Dept. of Mechanical Engg, School of Engg, DayanandaSagarUniversity, Bangalore
4. **NTC2016-565:** Dry Sliding Wear Characteristics of Aluminum alloy 8011/AlB<sub>2</sub> in-situ Composite. Narendra Kumar Dept. of Mechanical Engineering, B.I.E.T, Jhansi
5. **NTC2016-513:** The effect of sliding speed on fabricated SU-8/Talc/PFPE composites. Jitendra K Katiyar Dept. of Mechanical Engg, IIT Kanpur

**Technical Session 5B, Venue: G6**

**Session Chair:**

1. **NTC2016-551:** Cavitation erosion behaviour of thermo-mechanically processed 16Cr5Ni stainless steel. Brij Kishor Dept. of Metallurgical and Materials Engg, IITRoorkee
2. **NTC2016-567:** Combined slurry and cavitation erosion behavior of heat treated 13Cr-4Ni martensitic stainless steel. Amarendra H.J Dept. of Mech. Engg, Malnad College of Engg, Hassan
3. **NTC2016-575:** Effect of load and sliding speed on sliding wear behavior of Al-2014 hybrid composites. Prasad Mahajan Dept. of Mechanical Engg, NIT Warangal
4. **NTC2016-540:** Erosion behavior of eggshell particulate epoxy composites. Vinay K Yadav Dept. of Mechanical Engg, NIT Warangal



5. **NTC2016-542:** Slurry erosion behavior of micro alloyed dual phase steels. Guru Prakash Dept. of Metallurgical and Materials Engg, IIT Roorkee

**Technical Session 5C, Venue: G7**

**Session Chair:**

1. **NTC2016-523:** Experimental study of abrasive wear on carbon fibre metal matrix composites. K.S Sridhar Dept. of Mechanical Engg, PES University, Bengaluru
2. **NTC2016-525:** Abrasive wear behavior of in-situ RZ5-6%TiC composite. Deepak Mehra Dept. of Mechanical & Industrial Engg., IIT Roorkee
3. **NTC2016-534:** Dry sliding wear behavior of tri-ceramic reinforced copper metal matrix Composites. Manvandra Singh K Dept. of Mechanical Engg, IIT (BHU), Varanasi
4. **NTC2016-566:** Influence of potassium titanate particles on tribo-performance of NAO friction materials. Vishal Mahale Machine Dynamics and Maintenance Engineering Centre, IIT Delhi
5. **NTC2016-587:** Erosive wear studies of hardened ASTM A36 steel with textured surfaces. Rajeshwar Verma Machine Dynamics and Maintenance Engineering Centre, IIT Delhi
6. **NTC2016-591:** Hot metal silicon control by injection of pulverized coal and iron bearing materials in blast Furnace-5 (Durga) of Rourkela Steel Plant: its tribological challenges. Prashanta K Padhi FTSI, Deputy General Manage, Rourkela Steel Plant, Steel Authority of India Limited

**12:15 – 13:15 Hr. Valedictory**

**13:15 – Onwards Lunch and Closure of NTC-2016**

