



# 1<sup>st</sup> Symposium on



## Bio-Tribology and Related Medical Devices

3 – 4 June, 2024, Department of Mechanical Engineering  
Indian Institute of Technology Delhi, New Delhi, India  
Technical Programme (Venue: Block II, Room No. 422)

Time	Day-1, Monday 3 <sup>rd</sup> June 2024
9:00-9:30	Registration
<b>Session Chair: Prof. Sujeet K. Sinha</b>	
9:30-9:45	Opening talks
9:45-9:50	Lighting Diya
9:50-10:00	Address by Chief Guest (Prof. M. R. Ravi, Head of the Department, Mechanical Engineering, IIT Delhi)
10:00-10:05	Vote of thanks
10:05-10:35	<b>Tea Break</b>
<b>Technical Session-1, Friction, Wear and Lubrication</b>	
<b>Session Chair: Prof. Sujeet K. Sinha</b>	
10:35-11:05	Keynote Talk by <b>Prof. R. Gnanamoorthy</b> (IIT Madras) <i>Title: Bio Tribology – Tailored Test Techniques</i>
11.10-11.40	Keynote Talk by <b>Prof. A. P. Harsha</b> (IIT, BHU), <i>Title: Challenges Associated with Wear Testing of Orthopedic Biopolymers</i>
11:45-12:00	<b>Paper 11:</b> Tactile Friction Under Boundary Lubrication: Reduction in Friction Using Surfactants ( <b>Suyash Gairola</b> , Sanjeev Kumar and M.S. Bobji)
12:00-12:15	<b>Paper 13:</b> Corrosion-wear Behaviour of TiNbTaZr High-entropy Alloys for Biomedical Implant Applications ( <b>Soubhagyalaxmi F Guddad</b> , Praveenkumar K , Harpreet Singh Arora, Jagadeesh Sure and Geetha Manivasagam)

12:15-12:30	<b>Paper 24:</b> Fretting Wear Behaviour of Additively Manufactured Titanium For Orthopaedic Applications ( <b><u>Samiksha Moharana</u></b> , R. Gnanamoorthy and N. Arun Prakash)
12:30-12:45	<b>Paper 26:</b> UHMWPE Based Composites for Artificial Hip and Knee Joint Applications ( <b><u>Sandip Kumar Nayak</u></b> , Sujeet K. Sinha and Raj K. Pandey)
12:45-13:00	<b>Paper 27:</b> Tribological Characterization of Bio-interfaces – Opportunities and Challenges ( <b><u>M. Varshney</u></b> , and K. Pondicherry)
13:00-14:30	<b>Group Photo / Lunch Break, Venue: Gulmohar Faculty Guest House</b>
<b>Technical Session 2, Implant Devices/Fabrication</b>	
<b>Session Chair: Prof. R. Gnanamoorthy</b>	
14:30-15:00	Keynote Talk by <b>Prof. Devendra K. Dubey</b> (IIT Delhi), <i>Title: Nanomechanics and Nanotribology of Biopolymeric Systems: A Computational Approach</i>
15:00-15:15	<b>Paper 06:</b> Investigation of Wound Healing Efficacy of Plant Extracts Loaded Carboxymethylcellulose Film. ( <b><u>C. Balaji Ayyanar</u></b> )
15:15-15:30	<b>Paper 07:</b> Identification of Multiple Factors Affecting Scaffold Manufacturing via 4D Printing: A pre-manufacturing study ( <b><u>Dr. Ashish Kumar Srivastava</u></b> )
15:30-16:00	<b>Tea Break</b>
16:00-16:15	<b>Paper 15:</b> Soy Protein Isolate Matrices as Skin Wound Dressings for Successful Management of Highly Exuding Wounds ( <b><u>Priya Singh</u></b> , Neelima Varshney and Dr. Sanjeev Kumar Mahto)
16:15-16:30	<b>Paper 20:</b> Design and Development of Psyllium Polysaccharide-Based Scaffolds using 3D Printing ( <b><u>Sushmitha Paulraj</u></b> , Pooja Kumari, Snehlata Yadav, Dhanvi Vedantham and Dr. Sanjeev Kumar Mahto)
16:30-16:45	<b>Paper 22:</b> ASTM based Wear Testing Device for Polymeric Biomaterials. ( <b><u>Jaswant Kumar Hirwani</u></b> and Sujeet Kumar Sinha)
16:45-17:00	<b>Paper 23:</b> Role of Geometry on Bioresorbable Cardiovascular Stents Strength and Manufacturability using Micro Injection Molding Process ( <b><u>Dharmendra Kumar Tyagi</u></b> and Dhiraj K. Mahajan)
19:15	<b>General Introduction followed by Gala Dinner at Gulmohar Faculty Guest House</b>

## Day-2, Tuesday 4<sup>th</sup> June 2024

6:15-7:00	Tribology in Action - Stretching/Morning walk/Jogging and Interaction (Optional)* <i>Venue: Football Ground, IITD</i>
<b>Technical Session 3, Bio-tribology Mechanisms/Modellings</b> <b>Session Chair: Prof. Devendra K. Dubey</b>	
9:30-10:00	Keynote Talk by <b>Prof. Geetha Manivasagam</b> (VIT, Vellore), <i>Title: Bio-tribo-corrosion of Orthopedic Implants</i>
10:00-10:15	<b>Paper 10:</b> Prediction of Critical Velocity between Soft and Hard Solid Interfaces ( <b><u>V.S. Prasanth</u></b> , Arun K. Singh, Vinit Gupta and Jitendra Kumar Katiyar)
10:15-10:30	<b>Paper 12:</b> Fluid-Structure Analysis of Blood Flow in an Occluded Deformable Arteries ( <b><u>Deore Mansi</u></b> , Raja Jayendiran, Venkat Perumal and V M Phalle)
10:30-11:00	<b>Tea Break</b>
11:00-11:15	<b>Paper 14:</b> Investigating Molecular Scale Mechanisms of Ultralow Nanofriction at Self-Mated Cartilage Interfaces Using In-Silico Molecular Simulations ( <b><u>Abhinava Chatterjee</u></b> , Devendra K. Dubey and Sujeet K. Sinha)
11:15-11:30	<b>Paper 18:</b> Flow Induced Corrosion Study of Polycaprolactone Stents by Computational Fluid Dynamics Simulation (Ayush Sagar, Ankush Kumar <b><u>Manish Kumar Thakur</u></b> and Himansu sekhar Nanda)
11:30-11:45	<b>Paper 19:</b> On The Assessment of the Risk Factors Associated with Staircase Gait Activity: Case Example Based on Online Dataset ( <b><u>Lushank Shambharkar</u></b> and Dhananjay A. Jolhe)
11:45-12:00	<b>Paper 28:</b> Investigation on the Friction Coefficient of Human Hair using Capstan Method ( <b><u>Sumanta Prasad Dewri</u></b> , and R Gnanamoorthy)
12:00-12:15	<b>Paper 29:</b> Development of plasma-sprayed bioceramic coatings for bio-implant applications ( <b><u>Saminderpreet Singh</u></b> , Avneesh Kumar, Khushboo Rakha, Harpreet Singh)
12:15-13:00	<b>Valedictory Session, Panel Discussion &amp; Certificate Distribution</b>
13:00-14:00	<b>Lunch Break, Venue: Gulmohar Faculty Guest House</b>
14.15	<b>Lab Visit</b>
15:00	<b>Excursion Tour to Qutub Minar and Iron Pillar (Optional)**</b>

\* participants may come in running/jogging shoes and attire

\*\* participants may bring a small umbrella and water with them