

1st International Conference on Mechanical Power Transmission (ICMPT 2019)

IIT Madras, Chennai, India

Technical Program (with Presenting Author)*

Day 1 - 11th July 2019

Auditorium

Hall 2

Hall 3

0915 - 1000

Inauguration

1000 - 1030

Coffee/Tea Break

1030 - 1150

Session A1-Keynote Lectures

(Chair Person: Dr. Shankar Krishnapillai.)

A1-I1 Prof. Krishnan Balasubramanian, IIT Madras
NDT and health monitoring technologies for tribology and transmission components

A1-I2 Prof. Hiroo Taura, Nagaoka UT, Japan.
Effect of textured region on the static and dynamic characteristics of partially textured bearings

1200 - 1300

Session B1-Gears & Bearings

(Chair Person: Dr. Seshadri Sekhar, A.)

B1-C1 Pathak M, IIT Madras
Contact analysis of a planetary gear train using linear complementarity

B1-C2 Benny Thomas, Gas Turbine Research Establishment, DRDO, Bengaluru
Power loss prediction in asymmetric spur gear considering gear tooth dynamic load

B1-C3 Ravivarman R, MNNIT, Allahabad
Gear loss factor using the load distribution model for varying contact ratio in spur gear drive for improved bending strength

B1-C4 Roy B, NIT Silchar
Steady state behaviour of hydrodynamic journal bearings including random surface roughness

Session B2- Design Optimization

(Chair Person: Dr. Sourav Rakshit)

B2-C5 Ankit Joshi, IIT Mandi
Torque vectoring differential system for hilly terrain electric vehicles

B2-C6 Acharya S, NIT Surathkal
Optimal design and analyses of T-shaped rotor magneto rheological brake

B2-C7 Vikas Ghungarde, NIT Calicut
Design optimization of steering knuckle by adopting bionic design approach

B2-C8 Soni A K, IIT Mandi
Electric bicycle with regenerative braking system

1300 - 1400

Day 1 - 11th July 2019 - Lunch

178400 - 1530

Session C2- Invited Lectures

(Chair Person: Dr. Hiroo Taura)

C2-I3 Prof. Shankar Ram C S, IIT Madras
Overview of electrified vehicle powertrains

C2-I4 Prof. Noel Brunetiere, University of Poitiers, France
Lubrication regimes in mechanical face seals

Session C2-Lubrication Engineering

(Chair Person: Dr. Hiroo Taura)

C2-C9 Nagesh Dewangan, IIT Dhanbad
Degradation analysis of gear oil SAE 90 used in load haul dumper machine

C2-C10 Adarsh Kumar Shah, NIT Calicut
Study of the lubricating properties of hybrid liquid paraffin with TiO₂ and CuO as nano-additives for engine oil application

Session C3- Invited Lectures

(Chair Person: Dr. Parag Ravindran)

C3-I5 Mr Somanath S, Director, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram
Technology challenges in the design and development of high power turbo machinery for liquid rocket engines.

I2-I13 Thangaraj Raja, R & D Group, Bonfiglioli
Bonfiglioli product innovations and technologies for Indian market

Session C3-Failure analysis

(Chair Person: Dr. Parag Ravindran)

C3-C11 Nigam R, IIT Dhanbad
Crack detection in a shaft using finite difference technique

C3-C12 ShrvanKumar C, IIT Madras
Analysis of cracked rotor supported on porous layered journal bearing with gyroscopic effects

1530 - 1600

Tea & Coffee

1600 - 1700

Session D2- Bearings & Gears

(Chair Person: Dr. Ramkumar, P.)

D2-C13 Pramod Kumar Varanasi, Combat Vehicles Research & Development Establishment, Avadi
On torque splitting in split-path steering integrated automatic transmissions

D2-C14 Niranjana Y C, National Institute of Engg, Mysuru
Influence of So type of addendum modification on sliding performance of spur gear

D2-C15 Lokesh C, Turbo Energy Private Limited
Prediction of Sub synchronous behaviour of the turbocharger fully floating bearing system – Test Vs Prediction

D2-C16 Sai Kaushik A, IIITDMK, Kurnool
Fracture analysis of Gear Drive Using FEA

Session D3- Materials & Design

(Chair Person: Dr. Hariharan, K)

D3-C17 Prajwal B Bharadwaj, NIT Surathkal
Newtonian approach towards mathematical modelling and tuning of a Continuously Variable Transmission

D3-C18 Alex S. Syriac, Visvesvaraya NIT, Nagpur
Dynamic characteristics analysis of a lead screw by considering the variation in thread parameters

D3-C19 Sanjay W, R V J Tech Inst, Mumbai
Tribo-Behaviour of Plasma and HVOF Sprayed NiCrSiBFe Coating on SS 316

D3-C20 Aashish John, IISc Bengaluru
Surface hardening and microstructural study of Inconel x750 superalloy processed by ball milling: a feasibility assessment

1800 - 2100

Conference Dinner

I – Invited Lecture; Duration 30 min (25 Minutes Presentation + 5 Minutes Discussion); C – Contributory Presentations; Duration 15 min (12Minutes Presentation + 3 Minutes Discussion)

Day 2, 12th July 2019

Hall 2

0930 - 1100

Session E2-Invited Lectures (Chair Person: Dr. Palani Ramu.)

E2-I7 Prof. Masakazu Okazaki, Nagaoka UT, Japan
A well-balanced new tribological composite material based on non-utilized biomass- resources

E2-I8 Prof. Senthilvelan S, IIT Guwahati
Injection molded polymer gears: challenges

Session E2-Drives & Pulleys (Chair Person: Dr. Palani Ramu.)

E2-C21 Bijit Kalita, IIT Palakkad
Finite element analyses of a centre cracked heavy rotating pulley

E2-C22 Sivakumar Kanniyappan, IIITDM Kancheepuram
Numerical study of contact behaviour of roller chain drive

Hall 3

Session E3-Invited Lectures (Chair Person: Dr. Saravana Kumar G.)

E3-I9 Dr. Ganesan S, O S and Addl Director, CVRDE
Indigenous development of mechanical power transmission systems for combat aircraft applications

E3-I10 Prof. Christos Spitas, Nazarbayev Univ, Kazakhstan
High-ratio, high-efficiency, high speed, misalignment-tolerant and lubricant-starvation-tolerant transmissions with applications to aerospace and land vehicles

Session E3- Failure analysis (Chair Person: Dr. Saravana Kumar G.)

E3-C23 Soniya Malik, IIT Madras
Failure analysis of nose landing gear

E3-C24 Setti Suresh, Institute of Science and Technology, Bengaluru
Vibration Analysis of Heterogeneous Gearbox Faults using EMD Features and SVM Classifier

Hall 1

1100 - 1130

Tea Break

1130 - 1300

Session F2-Vibration & Kinematics (Chair Person: Dr. Abhijit Sarkar)

F2-C25 Hari Prasad Chintha, NIT Nagpur
Nonlinear parameter estimation in damping with volterra series through harmonic probing

F2-C26 Alamelu Manghai T M, VIT University
Vibration based real time brake health monitoring system a machine learning approach

F2-C27 Nanda Kumar S, NVH Ashok Leyland
Effect of timing gear train backlash on noise and vibration levels in 4 cylinder diesel engine

Session F3-Materials & Design (Chair Person: Dr. Sivasrinivasu Devadula)

F3-C31 Gurunathan C, IIITDM Kancheepuram
Finite element simulation of temperature rise and deformation characteristics of phenolic base composites used as brake materials

F3-C32 Bhargav, Ramaiah University of Applied Sciences
Numerical simulation and experimental validation of planetary gearbox system design to govern constant generator speed in hydro power plant

F3-C33 Nisha Pradeep Anagolkar, VIT University
To optimise the performance of electric powertrain by Tuning the CVT

Session F1- Gears & Bearings (Chair Person: Dr. Senthilvelan S)

F1-C37 Avil Allwyn Das, Don Bosco College of Engg, Goa.
Investigation on load distribution based on combined stiffness in altered tooth sum gears

F1-C38 Venkatakrishna Janakiraman, Romax Technology Inc, Longmont, USA
Simplified method to evaluate planetary gear train architectures for self-locking

F1-C39 Vaidhyanatha, Shanthy Gears Ltd, Coimbatore

F2-C28 Apeksha Ajit Dhere, VIT University
Extraction of vibration behaviour in conventional and electric drive two-wheeler using order analysis

F2-C29 Manoj R M, NMIT, Bengaluru
Influence of link lengths & input angles on the foot locus trajectory of klann mechanism

F2-C30 Graceson Jeriel Frederick, VIT University
Impact of adaboost and support vector machine classifier in automotive sector

F3-C34 Mayuresh Mutha, VIT University
Influence of vehicle parameters on handling characteristics and its control using torque vectoring

F3-C35 Gyan Prakash Sahoo, NIT Rourkela
Design and analysis of the differential mounts for an fsae vehicle

F3-C36 Bhaskara Ch, GM Tech Center India
Assessment of structural behavior of torque converter

Investigation on influence of circumferential velocity and lubrication oil grades on scuffing and thermal efficiency of gearbox

F1-C40 Mahendran M, Shanthi Gears Ltd
Design optimization and loaded tooth contact analysis of multispeed gearbox for low noise behaviour

F1-C41 Sarabjit Singh, DAV University, Jalandhar
Study and control of factors influencing casting shrinkage using DOE and numerical simulation gear design

1300 – 1400

Lunch

1400 - 1500

Session G2-Invited Lectures

(Chair Person: Dr. Samuel G L)

G2-I11 Prof. Yukio Miyashita, Nagaoka UT, Japan
Fatigue design for flake graphite cast iron applied for an automotive engine component

Session G2- Materials & Design

G2-C42 Sarita Bharti, IIT Guwahati
Sliding contact performance of metallic coated polymer material

G2-C43 Nirmalkumar R, NIT Surathkal
Powder metallurgy process towards functional gradation of Al-Al₂O₃ metal ceramic mixture samples

Session G3-Invited Lectures

(Chair Person: Dr. Dhiman Chatterjee)

G3-I12 Dr. Ramesh S. Pudale, Auto Desk, Pvt. Ltd., Bengaluru
Generative design for machine elements

Session G3-Design Optimization

G3-C44 Parathasarathy R, NIT Calicut
A novel methodology to optimise design parameters of an asymmetric gear

G3-C45 Joseph Shibu K, Aero Engine Research and Design Centre, HAL, Bengaluru
Multi-objective optimum design of an aero engine rotor system using hybrid genetic algorithm

1500 – 1530

Tea break

1530 - 1700

Session H2- Materials & Design

(Chair Person: Dr. Samuel G L)

H2-C46 Pavani U, IIT Madras
The effect of CNT addition on unbalance response and critical speeds of composite tube shafts

H2-C47 Venkatesh G, IIT Madras
Wear behaviour of nickel base alloy used in PEM fuel cell in electric vehicles

Session H3-Design Optimization

(Chair Person: Dr. Velmurugan R)

H3-C51 Uma Vidya T, BMS Institute of Technology
Design and fabrication of a multifunctional robot for harvesting areca nut

H3-C52 Alamelu Manghai T M, VIT University
Real time condition monitoring of hydraulic brake system using naïve bayes and bayes net algorithms

Session H1-Design & Manufacturing

(Chair Person: Dr. Prabhu Rajagopal)

H1-C56 Anjani Kumar, IIT Patna
Microstructure and hardness evaluation of Al-Ni-TiB coating on magnesium alloy AZ31 by TIG surfacing process

H1-C57 Wanare S P, Sardar vallabbhai NIT
Effect of current on weld bead characteristics and dilution of colmonoy 6 hardfacing on 304 steel by PTAW process

H2-C48 Ganesh B, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram
110 kW Fault Tolerant Electromechanical Actuator for Thrust Vector Control using Solid Propellant Motors

H2-C49 Rahul Tanwar, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram
Fault tolerant rotary electromechanical actuator for propellant flow regulators

H2-C50 Narender G, Vignan Institute of Technology and Science, Hyderabad
Mechanical properties anisotropy of aluminium alloy AA 2014 forge plate

H3-C53 Walke G A, Agnel Institute of Technology & Design, Goa
Development of Self-Propelled Material Handling System

H3-C54 Arpan C Patel, Sardar Vallabhbhai NIT
Kinematic, dynamic and stress analysis of drive system used in modern excavator drill

H3-C55 Pentela Karthik, IIT Madras
Design of ultra-light weight lattice structured gears for light duty applications

H1-C58 Abhijith R V, Mar Baselios College of Engineering and Technology, Kerala
Dynamic orthotic for spastic hands

Day 3, 13th July 2019

Hall 2

Hall 3

Hall 1

0930 - 1000

Session I2-Invited Lectures

(Chair Person: Dr. Ramkumar, P)

I2-I14 Dr Sahaya A Grinspan, Ms Ashok Leyland
Advances in Power Transmission in Heavy Duty Vehicles – An Overview

1000 – 11.30

Session J2- Gears & Lubrication

(Chair Person: Dr. Ramkumar, P)

J2-C59 Rahul Singh, Rajasthan Technical Univ, Kota
Investigation on modal behaviour of FGM annular plate under hygrothermal effect

J2-C60 Rajesh A R, Govt. Polytechnic, Kushalnagar
Versatile gear design through altered tooth-sum gearing ($Z\pm$ gearing) operating between specified centre distance

J3-C61 Mahendra Singh Raghav, Rustamji Institute of Technology, Gwalior
Development of theoretical model for specific film thickness and acoustic emission engendered in gear mesh.

J2-C62 Cimna S.Zakir, SCT College of Engineering, Trivandrum
Experimental investigation on the natural antioxidant additives for improving the performance of bio lubricant formulation from blended vegetable oil

Session J3-Design & Condition Monitoring

(Chair Person: Dr. Shaikh Faruque Ali)

J3-C63 Patange A D, VIT University, Vellore
Milling cutter condition monitoring using machine learning approach

J3-C64 Ranjith M, Sri Ramakrishna Engg College, Coimbatore
Condition Monitoring of Metal Working Fluids

J1-C65 Rajesh S, SASTRA, Thanjavur
Contact and bending load capacity enhancement through high entropy alloys

J1-C66 Sneha E, College of Engineering, Trivandrum
Evaluation of lubricant properties of vegetable oils as base oil for industrial lubricant

1130-1300

Valedictory Function and Lunch (Hall 3)

* subject to minor changes