INTERNATIONAL
GEAR CONFERENCE

27th- 29th August 2018
Lyon Villeurbanne
FRANCE

FINAL PROGRAMME

UNIVERSITÉ DE LYON · ECAM GRADUATE SCHOOL OF ENGINEERING Lyon · cnrs · LTDS Laboratoire de Tribologie et Dynamique des Systèmes · LaMCoS UMR 5259 · INSA INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

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Philippe VELEX	*INSA Lyon - LaMCoS Conference Chair*
Fabrice VILLE	*INSA Lyon - LaMCoS*

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Stephanos THEODOSSIADES	*Loughborough University (UK)*
Fernando VIADERO	*University of Cantabria (Spain)*

Schedule at a glance

	DAY 1	DAY 2	DAY 3
8:00 - 8:30	Registration	Sessions (9-12)	
8:30 - 9:00			
9:00 - 9:30			Sessions (25-28)
9:30 - 10:00	Welcome address PLENARY SESSION		
10:00 - 10:30		BREAK	
10:30 - 11:00		Sessions (13-16)	BREAK
11:00 - 11:30			Sessions (29-32)
11:30 - 12:00			
12:00 - 12:30			
12:30 - 13:00	LUNCH	LUNCH	
13:30 - 14:00			**Best Paper Award**
14:00 - 14:30	Sessions (1-4)	Sessions (17-20)	LUNCH
14:30 - 16:00			Sessions (33-36)
16:00 - 16:30	BREAK	BREAK	
16:30 - 18:30	Sessions (5-8)	Sessions (21-24)	END
19:00 - later		Banquet at Bocuse	

Monday 27th August morning

8:00 - 9:30	**REGISTRATION AT ESPACE TÊTE D'OR**
9:30 - 12:00	WELCOME ADDRESS **PLENARY SESSION, Moderator: Philippe Velex, INSA Lyon, France** 1 - Tribo-dynamic behavior of gear pairs *Ahmet Kahraman – Gleason Gear and Power Transmission Research Laboratory, Ohio State University (USA)* 2 - High Performance Plastic Gears - Potential and challenges *Karsten Stahl – Gear Research Centre (FZG) – Technical University Münich (Germany)* 3 - Integrated design and adaptative control of motor-gear systems *Datong Qin - State Key Laboratory of Mechanical Transmission, Chongqing University (China)*
12:30 - 14:00	LUNCH

Monday 27th afternoon

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	Room 1	Room 2
	Session 1: **Tooth modifications (I)** *Chair: Emmanuel Rigaud,* *Ecole Centrale Lyon (France)*	Session 2: **Power losses - Efficiency (I)** *Chair: Susumu Matsumoto,* *Waseda University (Japan)*
14:00 - 16:00	1- Optimization of tooth shapes for cylindrical gears using a multi-objective swarm algorithm *C. Lagresle, M. Guingand, J.-P. de Vaujany, B. Fulleringer* 2- The effect of tooth edge chamfer condition on the bending fatigue performance of carburised gears *C. J. Aylott, T. J. Lisle, B. A. Shaw* 3- New methodology to determine tooth modification for multi-mesh spur gears with dynamic housing deformation *H. Jia, D. Qin* 4- Robust Optimization of Tooth Surface Modification of Helical Gears with Misalignment *B. Yuan, X. Yin, L. Liu, G. Liu, S. Chang*	1- Change of the cycloidal gearbox efficiency for different kind of bearings, sleeves vs. needle bearings *K. Olejarczyk, M. Wikło, K. Kołodziejczyk* 2- Experimental determination of oil rheology parameters to be implemented in power loss predictions of gears and rolling element bearings *E. Athanasopoulos, A. Mihailidis* 3- Effect of Bearing Preload on the Efficiency of Automotive Manual Transmission under RDE Driving Cycle *A. Laredou, M. Mohammadpour, S. Theodossiades, A. Wilson, R. Daubney* 4- A new test rig to study rolling element bearing thermomechanical behavior *D. Niel, C. Changenet, F. Ville, M. Octrue*
16:00 - 16:30	BREAK	
	Session 5: **Tooth modifications (II)** *Chair: José Pedrero,* *UNED (Spain)*	Session 6: **Power losses – Efficiency (II)** *Chair: Athanassios Mihailidis,* *Aristotle University of Thessaloniki (Greece)*
16:30 - 18:30	1 - The effect of tooth profile modification on meshing stiffness and transmission accuracy of RV reducer for robot *H. Wang, Z. Shi , J. Lin, H. Xu* 2 - Effects of tooth modification on contact fatigue of spur gears *J Wang, T Chen, J Zhang* 3 - Flank Profile Modification Optimization for Spur Asymmetric Gears *A.L. Kapelevich, Y.V. Shekhtman* 4 - Application of Tooth-Skipped Gear Honing-Topology Modification *B. Yu, Z. Y. Shi, J. C. Lin*	1 - A new expression to estimate the mean coefficient of friction of the gear mesh *T. Touret, C. Changenet, F. Ville, V. Abousleiman, S. Becquerelle* 2 - Efficiency calculation of worm gear boxes through coupled tribological and thermal simulation *M. Oehler, B. Magyar, B. Sauer* 3 - CFD Simulation of Geared Transmissions with Injection Lubrication *H. Liu, F. Link, T. Lohner, K. Stahl* 4 - New estimation method of power loss in high-speed gears *S. Matsumoto*

	Room 3	Room 4
	Session 3: **Hypoid/bevel gears (I):** *Chair: Karsten Stahl,* *Technische Universität München (Germany)*	Session 4: **Manufacturing (I)** *Chair: Carin Andersson,* *Lund University (Sweden)*
14:00 - 16:00	1- Comparative analysis of contact characteristics with respect to different tooth profiles of internal meshing spiral bevel gears for nutation drive *Y. W. Cai, L. G. Yao, Y. Q. Wu, J. Zhang, Z. Lin* 2- Optimizing the operational behavior of bevel gears using a tolerance field-based approach *M. Trippe, A. Lemmer, C. Löpenhaus, C. Brecher* 3- Unloaded tooth contact analysis of hypoid gears for increased power density *D. Dooner, M. Vivet* 4- Analytical and development optimization of a hypoid gear set, a case study *D. Barday, J. Kaiser*	1- Geometry design of pinion cutters for face gears with offset in skiving with 5-axis machine *I. Moriwaki, X. Jiang, Y. Nakahara, E. Nagata, D. Iba* 2 - Influence of the machining strategy on the resulting properties of 5-axis hard milled bevel gears *M. Solf, R. Bieker, C. Löpenhaus, F. Klocke, T. Bergs* 3 - Efficient layout process of cylindrical gears with manufacturing constraints *I. Tsikur* 4 - Repairing surface damage on high value gears with isotropic superfinishing *L. Winkelmann, M. McCormick, V. Cline, J. Michaud*
16:00 - 16:30	BREAK	
	Session 7: **Hypoid/bevel gears (II):** *Chair: Stefan Schumann,* *University of Dresden (Germany)*	Session 8: **Manufacturing (II)** *Chair: Peter Tenberge,* *Bochum Universität (Germany)*
16:30 - 18:30	1 - Loaded tooth contact analysis of spiral bevel gears with kinematically correct motion transmission. *M. Vivet, A. Acinapura, D. Dooner, D. Mundo, T. Tamarozzi, W. Desmet* 2 - Design of bevel and hypoid gears with integration to manufacturing *J. Langhart* 3 - New calculation method of the scuffing load-carrying capacity of bevel and hypoid gears *J. Pellkofer, I. Boiadjiev, D. Kadach, M. Klein, K. Stahl* 4 - Co-simulation of the tooth contact of bevel gears within a multibody simulation *W. Wagner, S. Schumann, B. Schlecht*	1 - On Abrasive Water Jet Machining of Miniature Brass Gears *T. C. Phokane, K. Gupta, C. Popa* 2 - Simulation-Based Process Analysis for Discontinuous Cutting of Generated Bevel Gears *J. Mazak, C. Löpenhaus, F. Klocke, C. Brecher, T. Bergs* 3 - Penetration calculation based modelling of the process forces in cold rolling of powder metal gears *T. Frech, C. Löpenhaus, T. Bergs, F. Klocke* 4 - Prediction of process forces in gear honing *M. Schrank, M. Kampka, C. Kiesewetter-Marko, C. Löpenhaus, A. Epple, F. Klocke, C. Brecher, T. Bergs*

Tuesday 28th morning

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	Room 1	Room 2
	Session 9: **Contact analysis (I)** *Chair: Zhaoyao Shi,* *Beijing University of Technology (China)*	Session 10: **Durability, fatigue (I)** *Chair: Michel Octrue,* *CETIM (France)*
8:00 - 10:00	1 - Off-line-of-action contacts in internal gears *T.Pinel, J.Bruyère, P.Velex, L.Billet* 2 - Contact pressure optimization using super-elliptic profiles *M. Duchemin, C. Tugui, and V. Collee* 3 - Influence of thermal distortion on load distribution, transmission error and premature contact *A. Arana, A. Iñurritegui, J. Larrañaga, I. Ulacia* 4 - Contact Stress between Tooth Surfaces of Crossed Helical Gears *E. Tamura, R, Nemoto and N. Seyama*	1 - Reduction of tooth root bending stress by employing asymmetry both in tooth profile shape and tooth fillet form – dual asymmetry *B. Sahin, N. Yildirim, A. Akpolat, C. Fetvaci, Ö. Yildirim, B. Karatas, F. Erdogan* 2- Wear and Fatigue Mechanisms on Gear Flanks - New Test Machine for in-situ Measurements of all Tribological Effects *P. Tenberge, M. Joop, L. Gondecki, M. Weibring* 3 - Increasing the tooth root capacity of symmetric and asymmetric gears by optimizing the tooth root fillet shape *C. Chao, D. Bestle, D. Krüger, B. Meissner* 4 - Effect of Axial Sliding on Fatigue Strength of Steel for Gears in Contact-Bending-Fatigue (CBF) Tests *I. Moriwaki, S. Hashimoto, S. Yasuda, D. Iba*
10:00 - 10:30	BREAK	
	Session 13: **Contact analysis (II)** *Chair: Domenico Mundo,* *University of Calabria (Italy)*	Session 14: **Durability, fatigue (II)** *Chair: Jean-Pierre de Vaujany,* *INSA Lyon (France)*
10:30 - 12:30	1 - The influence of friction on the tooth normal force of spur and helical gears *T. Reimann, T. Herzog, D. Kadach, K. Stahl* 2 - Effects of pressure angle on 'initial tooth contacts pattern' and 'stresses in flex spline cup' in conventional harmonic drive *B. Routh, R. Maiti* 3- A Method for Calculating Contact Pressure and Tip Contact in Spur Gear Sets with Manufacturing Errors *R. Hjelm, L. Vedmar* 4 - Study on tooth surface error correction of planar enveloping hourglass worm *F. Y. He, Z. Y. Shi, J. Tang*	1 - Extending gear life via isotropic superfinishing and the differences between periodic and isotropic surfaces *L. Winkelmann, M. Bell, J. Michaud* 2 - Influence of the Hard Rolling Process and the Cooling Lubricant on the Material Properties and the Flank Load Carrying Capacity of PM Gears *P. Scholzen, C. Löpenhaus, F. Klocke* 3 - Engineering gear surfaces for high efficiency and strength *J. Zhang, C. J. Aylott, B. A. Shaw* 4 - Tooth root radius optimization considering hob protuberance, finishing stock, manufactu-ring tolerances and minimum reserve required *N. Vij, S. Sayyed, S. Singh*
12:30 - 14:00	LUNCH	

	Room 3	Room 4
	Session 11: **Hypoid/bevel gears (III)** *Chair: David Dooner,* *University of Puerto-Rico (USA)*	Session 12: **Manufacturing (III)** *Chair: Robert Frazer,* *University of Newcastle (UK)*
8:00 - 10:00	1 - Investigation of hypoid-gear tooth meshing using high-speed thermography-based monitoring and thermal network model *S. Arao, T. Hirogaki, E. Aoyama* 2 - Optimization of the flank load capacity of bevel gears by topological modifications *S. Schumann, B. Schlecht* 3 - Assembly Interference and its Avoidance of Spiral Bevel Gears in Cyclo-Palloid System *I. Tsuji, K. Kawasaki* 4 - Efficiency Improvement of Hypoid Gear for Automotive Transmission *K. Saiki, K. Tobisawa*	1 - Analysis of periodic components on tooth flanks by simulation of continuous generating gear grinding *J. Böttger, S. Kimme, W.-G. Drossel* 2 - Analysis of manufacturing costs for conventional gear manufacturing processes: a case study of a spur engine gear *B. Kianian, C. Andersson* 3- Theoretical Method for Calculating the Influence of Kinematic Error of Continuous Generating Grind *X. Y. Wang, Z. Y. Shi* 4 - Investigation on Laser Beam Machining of Miniature Gears *C. Popa, K. Gupta, A. Mashamba, T.C. Jen*
10:00 - 10:30	BREAK	
	Session 15: **Gear Dynamics (I)** *Chair: David Talbot,* *Ohio State University (USA)*	Session 16: **Tooth Surfaces and metrology** *Chair: Aizoh Kubo,* *Research Institute for Applied Sciences (Japan)*
10:30 - 12:30	1 - Influence of the Number of Teeth on the Dynamic Excitation Behavior of Two-Stage Cylindrical Gearboxes *C. Brecher, C. Löpenhaus, M. Schroers* 2 - Study on Vibration Characteristics of Fixed-Axis Gear Transmission in the Non-Inertial System *A. Q. Zhang, J. Wei, D. T. Qin, G. Zhong, Z. Pan* 3 - A Study of Nonlinear Excitation Modeling of Helical Gears with Modification: Theoretical Analysis and Experiments *J. Wei, G. Q. Wang, A. Q. Zhang, D. T. Qin* 4 - Output torque fluctuation for cycloidal gearbox *M. Wikło, K. Olejarczyk, K. Kołodziejczyk, R. Król*	1 - The application of Geometrical Product Specification (GPS) compatible strategies for the measurement of involute gears *R. C. Frazer, G. Koulin, T. Reavie, S. J. Wilson, J. Zhang, B. A. Shaw* 2 - Non-contact measurement of gear based on line structure light *T. Wang, Z. Y. Shi, H. Chen, J. Tang, J. C. Lin* 3 - Roughness measurement and grinding burn detection by using gear measuring machine with special probes *M. Kim, D. Iba, T. Tatsumi, H. Noda, J. Hongu, I. Moriwaki* 4 - A Parametric Analysis of the Surface Roughness of Teeth Shaped by a Pinion Shaper Cutter and Guidelines for Choosing Process Parameters *M. Svahn*
12:30 - 14:00	LUNCH	

Tuesday 28th afternoon

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	Room 1	Room 2
	Session 17: **Gear noise and vibration (I)** *Chair: Ahmet Kahraman, Ohio State University (USA)*	Session 18: **Durability, fatigue (III)** *Chair: Datong Qin, Chongqing University (China)*
14:00 - 16:00	1 - Dealing with gear noise of real industrial systems: an overview of the difficulties and the achievements *A. Carbonelli* 2 - Noise-induced intermittency in a model of gear rattle *J. Perret-Liaudet, E. Rigaud* 3 - Experimental investigation of gear rattle by visualizing vibroimpact regimes with a high-speed camera *E. Rigaud, J. Perret-Liaudet, M. Guibert* 4 - Effect of gear loading on idle gear noise of heavy-duty diesel engines *A. Tatar, C. Karaca, O. Subasi, M. S. Tabak, K.Y. Sanliturk*	1 - On the use of specimens for gear bending fatigue design *C. Dengo, F. Lo Conte, G. Meneghetti* 2 - Evaluation of gear steel by very local fracture test *A. Kubo, H. Nagae, M. Akiyama* 3 - Analyzing the tooth root load carrying capacity of thin rimmed planet gears *M. Tragsdorf, B. Schlecht* 4 - Effects of Low Temperature Treatments on Surface Hardness, Retained Austenite Content, Residual Stress Condition and the Resulting Tooth Root Bending Strength of Case-Hardened 18CrNiMo7-6 Gears *D. Kratzer, F. Dobler, T. Tobie, T Hoja, M. Steinbacher, K. Stahl*
16:00 - 16:30	BREAK	
	Session 21: **Gear noise and vibration (II)** *Chair: Stephanos Theodossiades, Loughborough University (UK)*	Session 22: **Durability, fatigue (IV)** *Chair: Geng Liu, Northwestern Polytech. University (China*
16:30 - 18:30	1 - Effects of gear manufacturing error on housing vibration considering foundation impedance *Y.F. Ren, L.Y. Wu, X. Wang, G. Liu, S. Chang* 2 - Dynamic Characteristics Research on Dual Gearboxes Transmissions Coupled Vibration *H. Wang, Y. Zhao, G. Dai, L. Wu, X. Yin* 3 - Vibrations and whining noise computation of an entire rail gearbox *K. Landet, J. Perret-Liaudet, E. Rigaud, M. Fraces* 4 - Modelling of high power geared transmissions with dissipative elements *C. Chevrel-Fraux, J. Bruyère, P. Velex, R. Fargère*	1 - Investigations on the Tooth Root Bending Strength and the Fatigue Fracture Characteristics of Case Carburized and Shot Peened Gears of Different Sizes *K. J. Winkler, S. Schurer, T. Tobie, K. Stahl* 2 - A model approach for considering non-metallic inclusions in the calculation of the local tooth root load carrying capacity of high-strength gears made of high-quality steels *D. Fuchs, S. Schurer, T. Tobie, K. Stahl* 3 - A precise prediction of the tooth root stresses for involute external gears with any fillet geometry under consideration of the exact meshing condition *T. Paucker, M. Otto, K. Stahl* 4 - Modeling gear transmission with tooth cracks subjected to different torques *A. Fernández del Rincón, A. Diez Ibarbia, P. García Fernández, M. Iglesias, A. De Juan, F. Viadero*
19:00 - later	BANQUET AT BOCUSE	

	Room 3	Room 4
	Session 19: **Planetary gears (I)** *Chair: Vincent Abousleiman , SAFRAN Transmission systems (France)*	Session 20: **Gear design (I)** *Chair: Lionel Manin, INSA Lyon (France)*
14:00 - 16:00	1 - Low Noise and Transmission Error Epicyclic Gearbox Designs *B. Shaw, T. Lisle, R. Frazer* 2-Simulations of the dynamic response of planetary gears in presence of localised tooth faults *Q. Thoret-Bauchet, P. Velex, M. Guingand, P. Casanova* 3- A hybrid model to study the dynamic behavior of planetary gears *S. Portron, P. Velex, V. Abousleiman* 4- A Theoretical Study of the Overall Transmission Error of Planetary Gear Sets *Y. Hu, L. Ryali, D. Talbot, A. Kahraman*	1- Analysis on a novel dual-mode power-split hybrid powertrain *L. Yang, M. Hu, D. Wang, D. Qin, A. Zhou* 2 - Numerical analysis of magnetic field characteristics for non-contact nutation drive with different nutation angles *M. Lou, C. Guo, L. Yao, D. Huang, Y. Zheng* 3 - Helicopter gearbox loaded tooth contact analysis improvement for a better predictive simulation *G. Sika, M. Gatti* 4 - Mathematical model and the online measurement design for the helical tooth profile of the stationary internal toroidal gear *X. L. Zeng, L. G. Yao, J. Z. Zhu, W. W.Lin*
16:00 - 16:30	BREAK	
	Session 23: **Planetary gears (II)** *Chair: Joel Perret-Liaudet, Ecole Centrale Lyon (France)*	Session 24: **Gear design (II)** *Chair: Christophe Changenet, ECAM Lyon (France)*
16:30 - 18:30	1 - A method for predicting sidebands in planetary gears with ring gear manufacturing errors *T. Eritenel, C. P. Glinsky* 2 - Dynamic characterization of double-relief profile modifications in planetary gear systems *V. Y. Ozturk, E. Cigeroglu, H. N. Özgüven* 3 - Scaling of Planetary Gear Stages according to gear excitation similarity *U. Weinberger, F. Siglmüller, J. Götz, M. Otto, K. Stahl* 4 - Finite element based simulation of planetary gearboxes using model-order reduction *B. Blockmans, R. Adduci, J. Fiszer, N. Cappellini, F. Cosco, W. Desmet*	1 - Increasing the accuracy and reliability of driveline calculations with FEA *C. O. Sevim, I. Ender* 2 - Estimation of feel of fishing reel by using the tactile response delay time *T. Inoue, S. Kurokawa* 3 - Calculation of the meshing stiffness and the load sharing ratio of internal spur gear pairs including hertzian effects *M. B. Sánchez, M. Pleguezuelos, J. I. Pedrero* 4 - Comparison between a regular and a constant mesh stiffness gear *P.M.T. Marques, R.C.Martins, J.H.O. Seabra*
19:00 - later	BANQUET AT BOCUSE	

Wednesday 29th morning

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	Room 1	Room 2
	Session 25: **Gear noise and vibration (III)** *Chair: Philippe Velex,* *INSA Lyon (France)*	Session 26: **Plastic gears (I)** *Chair: Ichiro Moriwaki,* *Kyoto Institute of Technology (Japan)*
9:00 - 10:30	1 - Efficient simulation of gear manufacturing and tooth contact analysis for evaluating noise excitation *J. Börner* 2- Frequency Spectra of Static Transmission Error in Spur Gears due to Errors *S. Case, D. Talbot* 3 - Vibration and noise prediction method of gear transmission considering the admit-tance of base *J. Wang, S. Chang, G. Liu, X. Wang, G. Dai, S. Zhao*	1 - Design and development of plastic nylon66 & polyoxymethelene composite helical gear in automobile application *V. L. Bhoyar* 2 - Experimental and Numerical Study of a Loaded Cylindrical Glass Fibre Reinforced PA6 Gear *J. Cathelin, M. Guingand, J.P. de Vaujany, F. Ville* 3 - Hybrid polymer gears: a solution to improve thermal behaviour *C. M. C. G. Fernandes, D. M. P. Rocha, R. C. Martins, L. Magalhães, J. H. O. Seabra*
10:30 - 11:00	BREAK	
	Session 29: **Gear Dynamics (II)** *Chair: Don Houser,* *Ohio State University (USA)*	Session 30: **Plastic gears (II)** *Chair: Fernando Viadero,* *University of Cantabria (Spain)*
11:00 - 13:00	1 - Numerical and experimental dynamic analysis of spur gears with thin web *D. Gueudry, F. Chambaret, V. Abousleiman, L. Biadalla* 2 - Quasi-static and dynamic analysis of thin-rimmed gears at high-speed – Centrifugal effect influence *B. Guilbert, P. Cutuli, P. Velex* 3 - Effects of mixed rotor eccentricities on the dynamic characteristics of motor-gear system *W. Bai, D. Qin, Y. Wang, T. C. Lim* 4 - A novel efficient high fidelity approach to gear contact simulation in multibody systems *A. Rezayat, S. Shweiki, D. Park, M. Vivet, S. Donders, S. Flock, P. Jiranek, T. Tamarozzi*	1 - Failure detection of plastic gears based on vibration analysis of meshing gear pairs (Generation of training data for failure detec-tion by artificial intelligence) *Y. Ishii, D. Iba, S. Miyamoto, N. Miura, T. Iizuka, A. Masuda, A. Sone, I. Moriwaki* 2 - Material Data for Advanced Plastic Gear Simulation *J. Cathelin* 3 - Development of polymeric materials for gearing applications *R. Ratnagiri, A. K. Shojaei* 4 - Noise of Injection Molded Plastic Gear Reinforced by Carbon Powder made from Rice Hull *T. Itagaki, M. Takahashi, H. Takahashi, H. Iizuka*
13:00 - 14:30	BEST PAPER AWARD / LUNCH	

	Room 3	Room 4
	Session 27: **Belts** *Chair: Michel Octrue,* *CETIM (France)*	Session 28: **Gear design (III)** *Chair: Nihat Yildirim,* *Gaziantep University (Turkey)*
9:00 -10:30	1 - Rotational response and slip prediction of serpentine belt drives *G. Čepon, M. Boltežar* 2 - Investigation on the timing belt drive with a non-circular pulley *S. Passos, L. Manin, O. Sauvage, L. Rota, B. Delattre, D. Remond* 3 - Distribution of power losses in serpen-tine belt-drive: application to FEAD *C.A.F. Silva., L. Manin., M.-A. Andrianoely. E. Besnier., D. Remond.*	1 - The Fundamental Law of Gearing *B. Lei, H. Löwe, X. Wang, Q. Wang* 2 - Design of asymmetric gears – potential and limits *U. Kissling, A. Pogačnik* 3 - Basic study on load-carrying characteristics of micro-spur-gears: In case of module 0.1 mm *M. Takahashi, T. Itagaki, H. Takahashi, N. Maeda*
10:30 - 11:00	BREAK	
	Session 31: **Planetary gears (III)** *Chair: Nevzat Ozguven,* *Middle East Technical University (Turkey)*	Session 32: **Gear design (IV)** *Chair: Michèle Guingand,* *INSA Lyon (France)*
11:00 - 13:00	1 - A model for predicting churning losses in planetary gears *J. B. Boni, C. Changenet, F. Ville* 2 - Whining noise computation of a plane-tary gear system induced by the multi-mesh excitations *J.Neufond, E.Rigaud, J.Perret-Liaudet, A.Carbonelli* 3 – Modal appropriation of multiple gears including planetary and epicyclic gears *M. Herran, C. Colette, P. Velex* 4 - The effects of axis misalignment on gear wear in planetary gear trains *J. Zhang, J. Wang, T. Chen, P. C. Xiao*	1 - Genetic multi-objective optimization of gears system *L. Amar, D. Ghribi, M. Octrue* 2 - FEM estimation of deformations and gaps in form closed epitrochoidal gears used in HST units *D. Roy, R. Maiti, P. K. Das, V. Sahoo* 3 - New approach in calculation of casing deformations - Integration of non-linear FE calculation in gear design process *T. Panéro, J. Langhart, I. Zotos, G. Franzoso* 4 - - Optimization of geometry, technology and reduction of cumulative bending stresses in asymmetric teeth with undercut root fillet on the example of civil aircraft gearboxes *V. L. Dorofeev, D.V. Dorofeev, V.V. Golovanov, S.G. Gukasyan, V. Abousleiman, S. Becquerelle,*
13:00 - 14:30	BEST PAPER AWARD / LUNCH	

Wednesday 29th afternoon

	Room 1	Room 2
	Session 33: **Gear Dynamics (III)** *Chair: David Talbot, Ohio State University (USA)*	Session 34: **Monitoring, detection of failures** *Chair: Christophe Changenet, ECAM Lyon (France)*
	1 - Modelling of the nonlinear dynamic behaviour of a roots vacuum pump with gear backlash *F. Maugan, E. Rigaud, J. Perret-Liaudet* 2 - Vibration Analysis of the Spur Gear System with Time Varying Stiffness of Gears and Bearings *C. I. Park* 3 - Development of gear dynamic performance testing machine *K. Li, Z. Shi, R. Li, J. Lin, Z. Shu* 4 - Optimum position of intermediate shafts in three or more parallel shaft transmission arrangement. *N. Vij, S. Sayyed, S. Singh*	1 - Analytical Investigation of Spur Gear Tooth Crack Effect on Statistical Indicators of Dynamic Response *M. Rezaei, M. Poursina, S. H. Jazi, F. H. Aboutalebi* 2 - Two dimensional damage diagnosis on a gear tooth surface using a zonal laser beam *E. Tanaka, Y. Lin, M. Nakasako, K. Ikejo* 3 - Fabrication of antennas on spur gears for condition monitoring by conductive-ink print *S. Futagawa, D. Iba, T. Kamimoto, M. Nakamura, N. Miura, T. Iizuka, A. Masuda, A. Sone, I. Moriwaki* 4 - Anomaly Detection for Gear Systems with Combination of Accelerometers and MEMS-AE sensors *J. Hongu, H. Yuta, T. Koide, A. Tamura*
14:30 - 16:30	**Room 3**	**Room 4**
	Session 35: **Planetary gears (IV)** *Chair: Ahmet Kahraman, Ohio State University (USA)*	Session 36: **Gear design (V)** *Chair: Fabrice Ville, INSA Lyon (France)*
	1 - Experimental evaluation of tooth-root bending strains of a sun gear in a planetary gear set for off-highway axles *A. Terrin, F. Lo Conte, G. Meneghetti* 2 - Development and evaluation of a novel planetary gear train reducing meshing frequency and noise level to use as a continuously variable transmission in three-axis driving *M. Nakagawa, D. Nishida, T. Hirogaki, E. Aoyama* 3 - Direct high-speed monitoring of planet gear centrode in a planetary gear train by observing planet gear's motion and instant center with a high-speed camera *M. Nakagawa, T. Fukuda, D. Nishida, T. Hirogaki, E. Aoyama* 4 – Orbitless Drive Tooth and Bearing Loads *L. Stocco*	1 - A recursive algorithm based numerical method for calculating the pitch curves of non-circular gears with variable center distance *B. Li, J. Hu, D. Chen, Bo Li, J. Zhao* 2 - Research on the influencing factors of input speed synchronization and load sharing behavior of multi-drive coupling gear train *M. Li, Y. Yang, D. Qin, M. Hu* 3 - The Mathematical Model for Spiral Non-Circular Bevel Gears *Zhang Weiqing, Zhang Mingde, Zheng Fangyan, Ruonan Wang, Guo Xiaodong* 4 - Characteristics of meshing limit line of conical surface enveloping conical worm drive *Y. Zhao, Q. Meng*
	END	

INTERNATIONAL GEAR CONFERENCE

27th- 29th August 2018
Lyon Villeurbanne

Best Paper Award

The organising committee is pleased to announce that a prize will be awarded to the best paper published in the proceedings of the 2018 International Gear Conference in Lyon. The Best Paper Award will be presented to the individual(s) judged by the organising committee to have written the best full-length paper.

The prize of 2000 Euros together with a certificate will be given to the author(s) during the Best Paper session on 29th August, 2018 in Lyon.

Exhibitors

Conference sponsors (listed on the final page) will present their latest products/innovations during the 3 days of the International Gear Conference at stands situated in the lobby area.

Accommodation & Tourism

Accommodation

http://book.lyon-france.com/en/accommodation provides a list of major hotels in Lyon. Please note that your credit card will be charged upon reservation :

For free booking service, book now, pay hotel upon arrival or when checking out, go to http://book2.lyon-france.com/en/accommodation

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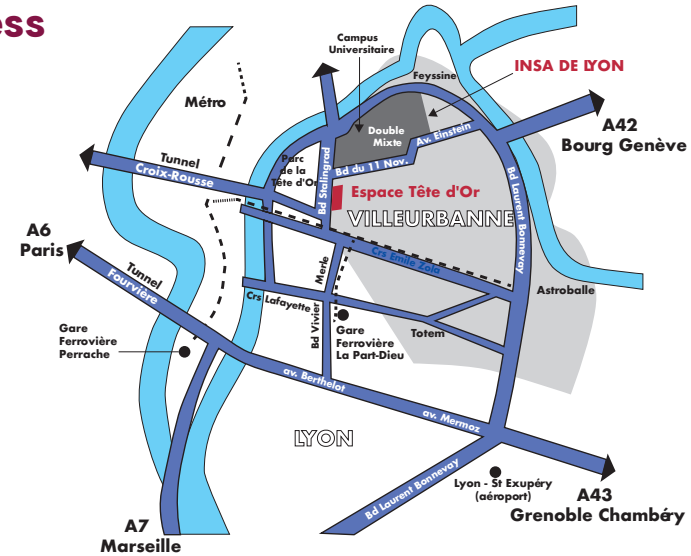

The conference will be held at the conference centre « Espace Tête d'Or » which is located 103 Boulevard Stalingrad, Lyon-Villeurbanne, near the Parc de la Tête d'Or and only 1 km from INSA Lyon.

CONFERENCE WEBSITE

Further information concerning travel arrangements, accommodation, paper submission etc , may be found on the conference website at:

http://int-gear-conf18.sciencesconf.org

Contact: Philippe VELEX at Philippe.Velex@insa-lyon.fr

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