

**International Workshop on Fatigue and Vibration of Overhead Conductors, Brasília
17th - 18th September 2018**

Technical Program

Monday, 17th September

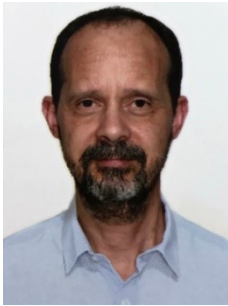
08:30 - 09:00	Workshop Registration
09:00 - 09:40	Workshop Opening
09:40 - 10:10	CEO/Director of EATE
10:10 - 10:40	Refreshments
10:40 - 11:10	Superintendent of R&D of ANEEL
11:10 - 11:40	Professor José Alexander Araújo - University of Brasilia <i>Assessment of the fatigue failure of an All Aluminium Alloy Cable (AAAC) in a 230kV transmission line in the Center-West of Brazil</i>
11:40 - 12:20	Sidnei Ueda - Engineer Specialist, Alubar <i>Vibration aspects and safe conditions relating to fatigue of conductors Al Alloy 1120</i>
12:20 - 13:30	Lunch
13:30 - 14:10	Stéphane Claude M. Morice - OHL Tek Center Manager, Nexans <i>AAAC 1120 Overhead lines - Australia & Brazil</i>
14:10 - 14:50	João Félix Nolasco - Independent Consultant <i>Relevant mechanical aspects in the design of overhead lines: an analysis of vibrations and fatigue of conductors</i>
14:50 - 15:30	Jack Roughan - Independent Consultant <i>Australian overhead line conductor serviceability tensions</i>
15:30 - 16:10	Umberto Vito P. Cosmai - Independent Consultant <i>Vibration behaviour of twin bundles of OHTL and suitable damping systems</i>
16:10 - 16:30	Refreshments
16:30 - 17:10	Professor Sébastien Langlois - University of Sherbrooke <i>Finite element model to evaluate vibration amplitudes of a conductor-damper system</i>
17:10 - 17:50	Professor Sara Muggiasca - Polytechnic of Milan <i>Analytical models for the prediction of cable vibrations: development and experimental validation</i>

Tuesday, 18th September

09:00 - 09:40	Jonas Michael Truessel - Product Manager, Pfisterer <i>Findings from vibration measurements and fatigue tests on AAAC conductors</i>
09:40 - 10:20	Umberto Vito P. Cosmai - Independent Consultant <i>Field vibration measurements on conductors in HAES clamps. A controversial procedure.</i>
10:20 - 10:40	Refreshments
10:40 - 11:20	Professor Eduardo Márcio de O. Lopes - Federal University of Paraná <i>Vibration control in overhead power cables by viscoelastic neutralizers</i>
11:20 - 12:00	Jack Roughan - Independent Consultant <i>Powerlink's Experience with AAAC1120 Conductor</i>
12:00 - 13:30	Lunch
13:30 - 14:10	Professor Jorge Luiz de A. Ferreira - University of Brasília <i>Influence of the H/w parameter on the fatigue life of overhead conductors</i>
14:10 - 14:50	Professor Fábio Comes de Castro - University of Brasilia <i>Fatigue of two contacting wires of overhead conductors: experiments and prediction of crack initiation life</i>
14:50 - 15:30	Professor Sébastien Langlois - University of Sherbrooke <i>Evaluation of the fatigue life of an ASCR conductor-clamp system with a coupled numerical and experimental approach</i>
15:30 - 15:50	Refreshments
15:50 - 17:50	Visit to the facilities of the Fatigue, Fracture and Materials Research Group at University of Brasilia (Optional)

General Aspects Sessions
Vibration Sessions
Fatigue Sessions

Speakers Biography



Eduardo Márcio de O. Lopes is associate professor of the Federal University of Paraná (UFPR), coordinator of the Laboratory of Thermomechanical Properties of Viscoelastic Materials (LPTMV/UFPR) and one of the leaders of the Research Group in Vibration and Sound in Mechanical Systems (GVIBS/UFPR). He holds a bachelor's degree in Mechanical Engineering by the Federal University of Minas Gerais, a master's degree in Mechanical Engineering, area of Vibration and Noise, by the Federal University of Santa Catarina, and a PhD degree in Mechanical Engineering by the University of Wales Cardiff (currently Cardiff University). He is active in the field of Dynamics of Rigid, Elastic and Plastic Bodies, particularly in Vibration Control of Mechanical Systems, by both passive and hybrid (passive-active/adaptive) means. He is also the vice-coordinator of the Postgraduate Program in Mechanical Engineering (PG-Mec/UFPR) and member of ABCM, ABENGE and SBPC, apart from taking part in the Working Group GT B2 11/CIGRÉ-BRASIL.



Fábio Comes de Castro joined the Department of Mechanical Engineering at the University of Brasilia in August 2008, after receiving his Ph.D. in Mechanical Sciences from Coppe-UFRJ in 2007. His research focuses on the modeling, simulation, and experimental characterization of fatigue-related phenomena in metallic materials. Dr. Castro and co-workers have developed over the last 10 years a number of fatigue models, encompassing low-cycle fatigue behavior, high-cycle fatigue behavior, notch fatigue and fretting fatigue.

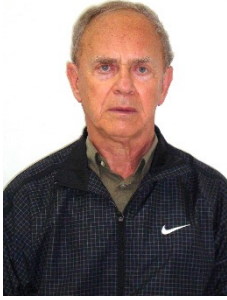


Jack Roughan has worked in the supply of products for transmission and distribution lines for more than 30 years and has a wealth of experience in the design, manufacture and use of products that are supplied to the industry, with a speciality for vibration control products. Jack started work with Dulmison working on the design and development of the "Dogbone" range of Vibration Dampers which are in wide use in Australia and USA. This was followed by design and development of spacer dampers for control of vibration on bundled conductor lines. Jack provided field assistance for the installation of damping devices and field monitoring of the damping performance, and is now internationally recognised for his work on vibration control on power lines. Jack

is a member of a number of committees for Australian Standards as well as several IEEE technical committees related to products used for Transmission and Distribution. He is also a member of the CIGRE APB2 Panel, and corresponding member for international CIGRE panel B2.58. Jack worked in Australia, USA, UK and in Asia. He has previously been the global Engineering Manager for Dulmison and was the Group General Manager for Dulhunty Power. Jack now works as a consultant providing advice on vibration control issues as well as the design, specification and application of transmission and distribution line hardware and insulators.



Jorge Luiz de A. Ferreira is graduated in mechanical engineering at Fluminense Federal University (1990) and received his MSc. and PhD. from Pontifical Catholic University of Rio de Janeiro. At the moment he is Professor at the mechanical engineering department of University of Brasilia. His research interests include stress analysis, fatigue, finite element method, experimental stress analysis, stress analysis and structural reliability.



João Félix Nolasco is graduated in *Electric & Electronic Engineering* and M.S. in *Transmission Systems*, in State University of Minas Gerais (UFMG), Brazil. Also graduated in *Statistics*. Engineer in *Siemens Brazil* (Jan to June 1967) and then in *Siemens Germany* (1967-1969). He acted as Professor in the *UFMG University* (1968-1970), then started his career at the Electric Utility *Cemig*, as Planning Engineer, Design Engineer, Head of Electric Studies of T. Lines and finally Head of Transmission Line Department. From 1994 until today, he has acted as Consultant in both *AC and DC Transmission Systems and Planning*, providing services to several Utilities and private Transmission Companies in Brazil, Argentina, Chile, Peru, Bolivia, Suriname, Mexico, USA, South Africa etc. Member of SC B2 (*Overhead Lines*) of *Cigré* from 1984 to 1998, and then Convener of some WG's and TF's covering AC & DC lines (1998-2016). Author of several technical reports and *Cigré T Brochures* and co-author of the Book "**Overhead Power Lines**" (Springer Verlag, Germany), in 2002. He wrote and provided a 1000-page course on Transmission Lines in South Africa UCT) 1989 and in other countries afterwards. Co-author of *Cigré Green Book* (2017).



Jonas Michael Truessel finished his master's degree in Electrical Engineering at the ETH Zurich in 2014 and a CAS as Safety Engineer, also at the ETH Zurich, in 2015. His career at PFISTERER SEFAG AG started in 2016 as product manager for OHTL. In his work he is responsible for all OHTL conductor fittings and string fittings inclusive damping systems. From the beginning he joined the team performing vibration studies and measurements. He is also answerable for the customer service and distribution of the VIBREC 500 products and services. He performed field vibration tests in Switzerland, Slovenia and Saudi Arabia. He has held seminars on overhead conductor vibrations, relevant damping systems and the VIBREC 500 in Switzerland, Portugal, Ireland, Chile, Saudi Arabia and India.



José Alexander Araújo joined the Department of Mechanical Engineering at the University of Brasilia in 2002, after receiving his Ph.D. in Engineering Sciences from the University of Oxford in 2000. His research focuses on the modeling, simulation, and experimental characterization of fretting and multiaxial fatigue in metallic materials. He is a founding member of the Committee of Fatigue and Fracture Mechanics of the Brazilian Society of Mechanical Sciences and Affiliated Member of the Brazilian Academy of Sciences. He was the main responsible for the creation and is the current coordinator of some of the most important and well equipped fatigue laboratories in Latin America. These laboratories involve 8 MTS test rigs, SEM and Confocal Laser microscopes and three 50 m test spans to conduct resonant fatigue tests in overhead conductors. Professor Araújo has carried out intensive research on fretting fatigue of overhead conductors and their wires. He has coordinated a number of research projects on this subject with some of the most important transmission line utilities in Brazil. He is former member of *Cigré International Sub-Committee B2 Work Group 11 Task Force 7 (CIGRE SCB2 WG11)*. He supervised the thesis of 10 doctorate students, 19 MSc and 30 undergraduate projects. He has published more than 140 papers.



Sara Muggiasca was Born in Milan, 25 August 1978. 1997: Scientific degree at “Liceo Scientifico Galileo Galilei” in Legnano (MI). 2002: graduation in Mechanical Engineering at the Politecnico di Milano, (100/100 with honors). 2006: Ph.D in Mechanical System Engineering at the Politecnico di Milano. From 2003 to 2011 Technician at Politecnico di Milano Wind tunnel. Since December 2011: Researcher at the Faculty of Industrial Eng. of Politecnico di Milano, Mechanical Department. **Scientific activities:** the scientific activity was developed at the Mechanical Department, on topics related to bridge aeroelasticity, vortex shedding from bluff bodies, yacht sails optimization, aerodynamics of civil structures and roofs, aerodynamics of cables, pedestrian comfort in urban areas, modal identification technique, wind energy. **Teaching activity:** Assistant lecturer in Applied Mechanics for Chemical Engineering and in Mechanical vibrations for Mechanical Engineering. Lecturer in Applied Mechanics for Biomedical Engineering.



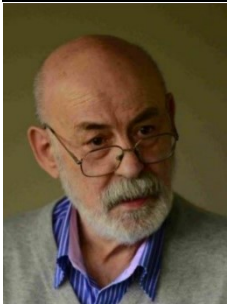
Sébastien Langlois has received his Ph.D. from Université de Sherbrooke, Canada in 2013 and his B. Eng. and M. Eng. in civil engineering from McGill University, Canada in 2005 and 2007 respectively. He is a registered professional engineer in the province of Québec, Canada. Since 2014, he is an assistant professor in the civil and building engineering department at Université de Sherbrooke. He is the principal investigator for the research partnership with Hydro-Québec and RTE (France) on structural and mechanical aspects of power transmission lines. He is supervising or supervised the research work of more than 15 Master and PhD students and is the coauthors of more than 30 scientific publications. He also has two years of experience in a consulting company in the field of transmission line structural design. He is the task force leader on corrosion as part of the CIGRÉ Working Group B2.68 on the sustainability of conductors and an active member of CIGRÉ Working Group B2.61 on the use of composite materials for transmission lines.



Sidnei Ueda is graduated in electrical engineering at University of Campinas (UNICAMP), also graduated in business and economy administration at Organização Guaratinguetá de Ensino, and post-graduated in power systems (2018). He has worked in Furukawa Industrial (1982-2003) and in Nexans Brasil (2003-2016). At the moment he is the expert engineer at ALUBAR Metais e Cabos where he is responsible for (i) implementation of innovations, developments for short, medium and long terms, (ii) to make an interface of products developments and market needs and (iii) to spread and promote those products to the market showing technical and economic advantages, based on results of tests, essays and practical installations. Sidnei is also a regular member and corresponding member of some *Working Groups* of Study Committee B2 – OHL (Overhead Lines). Author and co-author of papers and technical brochures with presentations done in national and international seminars, such as, SNPTEE, SENDI, ERLAC, ERIAC, etc.



Stéphane Claude M. Morice joined Nexans in 2006 as R&D project manager. In this position, he works in the development of several metallurgical new products in different business such as automotive, LAN, aeronautic. He also participates to develop new technologies linked to the overhead lines as carbon composite core, surface treatment in close relation with European TSO. He is currently product manager for overhead line for Nexans group and active member of CIGRE, CENELEC, IEC for OHL. Until 2006 he held different positions of process, methods, business engineer. He has a degree in physical chemistry and a post-graduate diploma in mechanics from the National school “Arts et Métiers”.



Umberto Vito P. Cosmai is an international independent consultant with more than 50 years of experience on overhead transmission lines. He worked for the Italian electricity board, ENEL, as laboratory engineer and researcher for 23 years. As chief of the Mechanical Test laboratory of the Electrical Research Centre, he performed numerous conductor self-damping measurements and type tests on spacer dampers, vibration dampers and other transmission line fittings. Moreover, he designed and operated outdoor test stations, in different parts of the country and abroad, for R&D studies on the effects of natural wind on overhead conductor. In 1982, he joined the company DAMP, as technical director, for which he designed vibration damping systems for overhead transmission lines up to 1000kV, including special projects for long river and channel crossings. He performed educational activities and authored several national and international papers and three books. He also co-authored the second edition of the EPRI book titled “Wind Induced Conductor Motion” and the CIGRE Green Book titled “Overhead Lines”. He conducted seminars on overhead conductor vibrations and performed field vibration measurements in 30 countries worldwide. He is member of IEC TC11 and was chairman of CIGRE WG B2.25 during 2006-2014. In 2012, he received the Cigrè Technical Committee Award.