

Inalco 2013 Heralds Aluminum's Momentum in Structural Design

Inalco 2013, the 12th International Aluminium Conference, to be held October 21-22 at the Palais des congrès de Montréal in Montréal, Québec, Canada, will feature three keynote speakers, Professor IR. Frans Soetens, Randy Kissell, and Jean Simard, presenting their unique perspectives on the aluminum industry, its strengths and challenges to an international audience of aluminum industry professionals, including engineers, designers, and scientists. The conference offers a host of technical presentations by leading researchers, engineers, and innovators in the global aluminum industry from countries including Canada, the U.S., Italy, Sweden, the Netherlands, Belgium, France, Japan, Brazil, Gambia, and Iran. Session categories include: Alloys & Properties, Metal Forming, Metal Joining, Construction, Manufacturing Research, Automotive Design & Fatigue, Sustainability, and Student presentations. New product design and development, construction, processes, emerging technologies, structural design, market sectors, and surface treatment represent highlighted conference topics. The program and its technical content are subject to change at the discretion of the Inalco 2013 Organizing and Scientific Committees.

Professor IR. Frans Soetens, an aluminum structural design expert, researcher, and industry consultant, is affiliated with the Department of the Built Environment, Unit Structural Design and Chair of Aluminium Structures at Eindhoven University of Technology in Eindhoven, the Netherlands. From 1975-2010, Soetens worked for the Netherlands Organisation for Applied Scientific Research (TNO). His 35 years of experience includes research, consulting, and knowledge transfer in the behavior of steel and aluminum structures and in aluminum structural design. He has led numerous national and international research projects for companies, universities, and research organizations throughout Europe. On Monday morning October 21, Soetens will present his keynote address to the general session, "Aluminium Building and Civil Engineering Structures: A Review of Research and Structural Design." He will discuss critical problems and challenges that designers face when seeking optimum structural solutions. Current Eurocode 9 design rules and their implementation in several Dutch structural applications will be highlighted, including an overview of research on aluminum's structural behavior and how this research has shaped European standards development.

Randy Kissell, P.E., is a senior partner with the TGB Partnership, an engineering firm specializing in aluminum structures in Hillborough, NC. Kissell is secretary of the Aluminum Association's Engineering Advisory Committee, responsible for *Specification of Aluminum Structures*, used throughout the U.S. for aluminum structural design. He is co-author of *Aluminum Structures – A Guide to Their Specification and Design*, which demonstrates how aluminum opens up design



Professor IR. Frans Soetens.



Randy Kissell, P.E.

possibilities for engineering and architectural professionals. Kissell co-holds two U.S. patents, including one for an aluminum bridge deck. His structural designs have been featured in *Civil Engineering* and *Engineering News-Record* and at ASCE Structures Congresses. He is chairman of the ASME B96 Committee for Welded Aluminum Alloy Storage Tanks, secretary of the American Welding Society's Subcommittee on Aluminum Structures, and a member of the ASTM Light Metal Alloys Committee, the American Society of Civil Engineers Load Standards Committee, and the American Petroleum Institute's Pressure Vessel and Tank Committee.

Kissell's keynote on October 21, entitled "The State of Aluminum Construction in the U.S.," addresses usage rates for aluminum in the building and construction market, current design codes that govern U.S. aluminum construction, and relevant seminars for aluminum structural engineers. He will discuss recent developments that include new software used in aluminum structural design and friction stir welding, and examine key challenges facing the U.S. aluminum structural industry.

Jean Simard is president and general manager of the Aluminium Association of Canada, in Montréal, and is president of the upcoming Canadian International Aluminium Conference. (CIAC). Simard is a public affairs and government relations consultant in the fields of the environment and energy, and joined Gaz Metro as vice president of sustainable development and government relations. He holds a degree in civil law from the University of Ottawa, is a member of the Bureau du Québec, and is on the Board of Directors of the Aluminium Research and Development Centre of Québec (CQRDA) and Mission Design, a non-profit organization in the field of design. On Tuesday morning, October 22, Simard will address the general session, presenting "The Status of the Aluminum Industry in Canada."



Jean Simard.

These keynote presentations introduce two days of aluminum technical sessions at Inalco 2013, with the theme: "Bringing Innovative Ideas to the World of Tomorrow," held in conjunction with the CIAC, October 21-25, the flagship of the week-long aluminum industry events in Montréal, including a three-day international exhibition, plant visits, technical courses, and a full-day workshop.

Latest Research, Technology, and Innovations

The following technical presentations are scheduled for Inalco 2013 in Montréal, with more to be added to the final conference program.

5 Dimensional CFD Simulation and Optimisation of Ventilation for Smelter Process Applications: E. Baltuch, and S. Baltuch, Air-Therm Inc., Montréal, QC, Canada

Casting a Very Unconventional Aluminum Alloy in Low Pressure Permanent Mould (LPPM): N. Giguère and F. Chiesa, Centre de Métallurgie du Québec, Trois-Rivières, QC, Canada

Effects of Lubricating Conditions on Machinability of AA6061-T6: J. Kouam, V. Songmene, ÉTS, Montréal, QC, Canada; M. Balazinski, École Polytechnique, Mon-

tréal, QC, Canada; and P. Hendrick, Université libres de Bruxelles, Belgium

Modeling the Formation of Transverse Weld in Billet-to-Billet Extrusion using Finite Element Method: Y. Mahmoodkhani, M. Wells, University of Waterloo, Waterloo, ON, Canada, and N. Parson, Arvida R&D Centre, Rio Tinto Alcan, Jonquière, QC, Canada

Process Optimisation of a Friction Stir Lap Welded 5456 Aluminium Alloy: M. Jahazi, ÉTS, Montréal, QC, Canada, and E. Salari, and A. Khadabandeh, IAU-University, Department of Materials Engineering, IAU-S&R Branch, Tehran, Iran

The Development of AA3065 – an Extrudable Alloy with Improved Mechanical Properties for Heavy-Duty Heat Transfer Applications: N. Parson, A. Maltais, and R. Guay, Arvida R&D Centre, Rio Tinto Alcan, Jonquière, QC, Canada

A Streamlined Approach to the Flexural Strength of Aluminium Members: R. Kissell, TGB Partnership, Hillborough, NC

Design for Fastener Tension and Pull-Out from Tapped Aluminium: J.C. LaBelle, Computerized Structural Design, S.C., Milwaukee, WI, and T.A. Dolby, Kawneer Company, Inc., Norcross, GA

Structural Behaviour of Aluminium Bolt-Channel Joint: Calibration of Numerical Models on Testing Results: V. Macillo, L. Fiorino, and F.M. Mazzolani, University of Naples “Federico II”, Naples, Italy

Effect of High-Speed Machining on Surface Integrity of 7075-T651 Aluminium Alloy: W. Jomaa, V. Songmene, and P. Bocher, ÉTS, Montréal, QC, Canada

Screwed Joint for Aluminium Extrusions: Experimental and Numerical Investigation: L. Fiorino, V. Macillo, and F.M. Mazzolani, University of Naples “Federico II”, Naples, Italy

Effect of Feeder Pocket Geometry on the Strengthening Tendency of 6xxx Extrusions: J.F. Béland, NRC, Saguenay, QC, Canada; C.W. Jowett, Rio Tinto Alcan, ON, Canada; and N.Parson and A. Maltais, Rio Tinto Alcan, QC, Canada

A Step for Aluminium Global Market Growth: A. Canice, Canice Maritime Alutec, Banjul, Gambia

Particle Emission and Dispersion during Dry Machining of Aluminium Alloys: A. Djebara and A. Bahloul, IRSST, Montréal, QC, Canada, and V. Songmene, ÉTS, Montréal, QC, Canada

Welding Training with an Interactive 3D Technology: C. Choquet, 123 Certification Inc., Montréal, QC, Canada

Turning Post-Consumer Scrap into Wrought Alloy: F. Bijlhouwer, Quality Consultants VOF, Heusden, the Netherlands

The Use and Misuse of Aluminium in Packaging: F. Bijlhouwer, Quality Consultants VOF, Heusden, the Netherlands

New Generation Surface Pretreatment Methods for Adhesive Bonding of AA6061-T6 Alloys: N. Saleema, and D. Gallant, NRC, Saguenay, QC, Canada, and D.K. Sarkar, University of Quebec at Chicoutimi, QC, Canada

Retrogression Heat Treatment of Aluminium Extrusions and Rolled Products to Facilitate Forming and Joining in Structures: J.C. Benedyk, Illinois Institute of Technology, Chicago, IL

High-Temperature Forming Processes for the Manufacturing of Complex Components using Aluminium Alloy Sheets: G. D'Amours, J.F. Béland, and E. Samuel, NRC, Saguenay, QC, Canada

Deburring and Edge Finishing of Aluminium Alloys: A Review: S.A. Niknam and V. Songmene, ÉTS, Montréal, QC, Canada

Structural Studies of Electrochemically Deposited Con-

ducting Polymer Polypyrrole on Aluminium Substrates: A. Siddaramanna and D.K. Sarkar, University of Quebec at Chicoutimi (UQAC), QC, Canada

Development of Aluminium High Stiffness Panels: M. Takahashi, Sumitomo Light Metal Industries, Ltd., Nagoya, Japan, and N. Ohtaki, Sumikei-Engineering Co., Ltd., Japan

Modelling Surface Grain Structure Evolution in AA6082 Hot Direct Extrusion: W.Z. Misiolek and N.H. Alharthi, Lehigh University, Bethlehem, PA; A. Güzel and A. Jäger, TU Dortmund, Germany; Luigi De Pari Jr.; and A. Erman Tekkaya, Atılım University, Turkey

Vibration Characterisation of a Modular Aluminium Pedestrian Bridge: S. Walbridge, S. Narasimhan, and A. Sychterz, University of Waterloo, Waterloo, ON, Canada

Aluminium Use in Vehicular Bridge Applications: A State-of-the-Art Review: S. Walbridge, University of Waterloo, Waterloo, ON, Canada, and A. De la Chevrotière, MAADI Group Inc., Montréal, QC, Canada

Increased Robustness in Three-Dimensional Friction Stir Welding using Force and Temperature Feedback: J. De Backer and G. Bolmsjö, University West, Trollhättan, Sweden

Selection of Spectrographic Certified Reference Material for the Analysis of Aluminium Alloys: J.F. Archambault, P. Bégin, and R. Hark, Arvida R&D Centre, Rio Tinto Alcan, Jonquière, QC, Canada

A New Heating System for Refractory used in the Aluminium Industry: S. Tremblay, M. Bouchard, and J. Bouchard, Pyrotek Inc., Chicoutimi, QC, Canada

The Use of Promag NI as Refining Agent in Molten Aluminium Treatment: S. Tremblay and J. Bouchard, Pyrotek Inc., Chicoutimi, QC, Canada

Effect of Grain Shapes of the Microstructure on the Mechanical Properties of the Binary Aluminium Alloy: S. Hamid and D. Larouche, Laval University, QC, Canada

Strategic Management of Innovation to Improve Competitive Advantages of Middle East Primary Aluminium Industries: H. Fanisalek, Marzban Petro Energy (MPE), Tehran, Iran

Fracture Study of a Welded Aluminium Cylinder Containing Longitudinal Crack and Subjected to Combined Residual Stress and Internal Pressure: M.R.M. Aliha and H. Gharehbaghi, University of Science and Technology, Narmak, Tehran, Iran, and R. Ghafoori Ahangar, Ecole Polytechnique, Montréal, QC, Canada

Designing Efficient and Cost-Effective Structures Utilizing Aluminum Extrusions: C. Werner, Werner Extrusion Solutions, LLC, Libertyville, IL

Optimisation of Friction Stir Welding Tool Advance Speed – Monte-Carlo Simulation of Non-Linear Finite Difference Heat Transfer Algorithm for Friction Stir Welding: K.A. Fraser, L. Kiss, and L. St-Georges, University of Quebec at Chicoutimi, Chicoutimi, QC, Canada

Design Considerations for Aluminium Products: F. Racine, R. Bihamta, Y. Archambault, P. Buzatu, and A. Chapdelaine, Alcoa Innovation, Montréal, QC, Canada

RTA CastPro™ Advanced Compact Filtration (ACF): Industrial Operation Feedback and Commercial Availability: F. Breton, Rio Tinto Alcan, Arvida R&D Center, Jonquière, QC, Canada, and J. Crépeau, Rio Tinto Alcan Corporate, Montréal, QC, Canada

Structural Design for Manufacturing with Aluminium: A. de la Chevrotière, MAADI Group Inc., Montréal, QC, Canada

Additional information on the Inalco 2013 Conference, scheduled events, and registration may be found on the conference website: www.inalco2013.com.