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In Celebration

Professor John Richard Thome on his 60th birthday

Prof. John R. Thome is a well-known expert in the field of two-phase flows and heat transfer, and is highly respected among his colleagues all over the world. He was born in Easton, PA. USA on February 25, 1953. His research spans nearly all areas of boiling and condensation and two-phase flows, covering both internal flows and external flows, enhanced heat transfer and micro/macro-scale heat transfer. He has made outstanding contributions to two-phase flow and heat transfer, through his research, reference books, teaching, and engineering science and application.

He is a Professor of Heat and Mass Transfer at the Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland since 1998, where his primary research interests are two-phase flow and heat transfer, covering both macro-scale and micro-scale heat transfer (boiling and condensation) and enhanced heat transfer. Prof. Thome is director of the Laboratory of Heat and Mass Transfer at the EPFL with a research staff of about 18–20 and is also Director of the EPFL Doctoral Programme in Energy. Until the end of 2011, he was also the Director of the ERCOFTAC European Coordination Center (*E*uropean *R*esearch *C*ommunity *O*n *F*low, *T*urbulence *A*nd *C*ombustion) with about 180 affiliated universities, research centers and industrial companies. He was the host of the recent 8th ECI International Boiling and Condensation Heat Transfer Conference in June 2012. He is the Swiss delegate to the Assembly of the International Heat Transfer Conference, which organizes the International Heat Transfer Conference every four years. He is associate editor of *Heat Transfer Engineering* and editorial board member of *International Journal of Microcale & Nanoscale Thermal and Fluid Transport Phenomena* (*IJMNTFTP*).

Prof. Thome received his Ph.D. at Oxford University, England in 1978 and was then an assistant/associate professor at Michigan State University. From 1984 to 1998, he ran a successful international engineering consulting company, until returning to academia in 1998 with his appointment at the EPFL. He is the author of four widely used books: *Enhanced Boiling Heat Transfer* (Hemisphere/Taylor & Francis, 1990), *Convective Boiling and Condensation, 3rd Edition* (Oxford University Press, 1994 with J.G. Collier), *Wolverine Engineering Databook III* (free e-book, 2004 and updated annually, with 21 chapters and over 200 embedded videos) and *Nucleate Boiling on Micro-Structured Surfaces* (free e-book, 2008 with M.E. Poniewski). He received the *ASME Heat Transfer Division's Best Paper Award* in 1998 for a 3-part paper on two-phase flow and flow boiling heat transfer published in the *Journal of Heat Transfer*. He has received the *J&E Hall Gold Medal* from the UK Institute of Refrigeration in 2008 for his extensive work on microscale refrigeration heat transfer and the *2010 ASME Heat Transfer Memorial Award* for his career work on flow pattern based heat transfer models for macro and micro-scale flows. He has published more than 170 journal papers with more than 3830 citations since joining the EPFL in 1998. He also hosts an annual one-week summer school on "Microscale Single- and Two-Phase Flow and Heat Transfer" each June at the EPFL and bi-annually also hosts the "Boiling" course at the EPFL.

Most of his research interests are directed on the joint topic of two-phase flow and two-phase heat transfer, his group at the LTCM lab is one of the world's premier research groups in his area. He has proposed many widely used prediction methods for: flow pattern

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maps in macro- and micro-channels, flow boiling and condensation in macro- and micro-channels and flattened tubes, critical heat flux, two-phase pressure drops, entrainment, void fraction, enhanced pool boiling heat transfer, bundle boiling heat transfer, falling film evaporation and dryout, falling film condensation, mixture boiling effects, oil effects on two-phase heat transfer, flow boiling in microfin tubes, flow boiling of CO_2 and pressure drop in U-bends, etc. His CO_2 flow pattern based flow boiling heat transfer model for macro- and micro-scale channels has been found to be highly accurate for CO_2 flow boiling and is being used to simulate CO_2 cooling of the new generation of particle detectors in development at CERN, the Stanford Linear Accelerator Lab and the Fermi lab. He is also active in numerical modeling of two-phase flows, including work on condensation in circular and non-circular microchannels and micro-gravity flows, and a new 3D/ALE-FEM numerical code for two-phase flow and evaporation in microchannels. His experimental activities now cover micro-PIV of single- and two-phase flows in microchannels and orifices, in addition to annular down-flows. He has proposed the first flow pattern-based suite of macroscale methods for predicting flow pattern transitions, flow boiling heat transfer, condensation heat transfer and two-phase pressure drops. He has also proposed the leading methods for flow boiling and critical heat flux in microchannels, just now adding a flow pattern-based model to this topic and has also just developed the first experimentally-validated simulation tool for combined heat spreading and flow spreading for multichannel micro-evaporators with non-uniform heat fluxes and hotspots. He has in recent years also proposed the first unified suite of annular flow models for predicting void fraction, entrainment, liquid film thickness, convective heat transfer and pressure drops in macro- and microscale annular flows, which so far are also proving there is not macro-to-microscale transition in annular flow. Recently, he has also extended his experimental research to cover two-phase flow control for electronics cooling and new hybrid cooling cycles, using speed control on oil-free pumps and compressors. His work is widely used in engineering practice in diverse industries: refrigeration, air-conditioning, petrochemical, nuclear, electronics cooling, high energy physics particle detectors, LNG, etc.

On the occasion of his 60th birthday, on behalf of his colleagues, students and friends all over the world, we all wish John a very happy birthday and happiness with his wife Carla and sons Luca and Alessandro. Sixty is still a young age for John, as he is very active in his research and teaching covering several important topics in heat transfer and continues to make outstanding achievements in heat transfer research, education, engineering practice and design, and publications. He has an unending enthusiasm for research on fundamental two-phase heat transfer and his personality (hard-working, easy-going, open minded, friendly and funny) makes it a pleasure to work with him. Besides, he is very nice and friendly person, even when it has nothing to do with two-phase flows. We all wish his best on his birthday, and we look forward to his continued achievements in research in the field of two phase flow and heat transfer.

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