



## Editorial

The 5th World Congress on Industrial Process Tomography took place in Bergen, Norway on 3–6 September 2007. The congress was organized by the UK Virtual Centre for Industrial Process Tomography (VCIPT) and the University of Bergen with support from the City of Bergen, the Michelson Centre for Industrial Measurement Science and Technology, National Instruments, Norwegian Society for Oil and Gas Measurement, Roxar Flow Measurement, Shaw Inspection Systems, the Institution of Engineering and Technology, and the Visualization Society of Japan. Over 140 colleagues representing 29 countries attended the Congress. Bergen was celebrating the life and works of Norwegian composer Edvard Grieg on the centennial of his death, so we enjoyed free performances of his music in addition to the city's other cultural and scenic attractions.

The 144 papers and 4 plenary lectures presented at the Congress reported on recent developments in the use of various types of tomography (e.g. electrical capacitance, electrical resistance, gamma-ray, nuclear magnetic resonance) to investigate multiphase phenomena within industrial processes. The full program is listed on the VCIPT website at <http://www.vcipt.org/wcipt5.html>. Many of those papers have already been published elsewhere, but this special issue highlights nine applications that are of particular relevance to the scope of this Journal. The paper on "High-speed Chemical Species Tomography in an automotive engine" won the Maurice Beck Prize for best paper at the Congress, and it demonstrates the use of optical tomography in improving the combustion process. Additional selections with an environmental chemical engineering theme address gas cleaning, water detection in sub-sea gas/condensate flow lines, and improved recovery of oil. Three

papers are related to chemical reaction engineering: one investigates the effect of surfactants on bubble motion in two-phase flow, and two papers describe the use of tomography to study the operation of chemical reactors (batch digesters and circulating fluidized beds). Finally, the paper on characterizing physical stability with electrical resistance tomography describes an interesting approach to an important problem in materials development, namely the early detection of phase separation in liquid systems.

A final remark about this Congress is that it marked the inauguration of the International Society for Industrial Process Tomography (<http://www.isipt.org>) during the final plenary session. The interdisciplinary field of Process Tomography has continued to develop over the past two decades; worldwide there are several hundred workers continuing to develop new applications for the technology, and commercial tomography systems are available from several sources. This new society will help to support further development of the field through organized events such as the next World Congress, which will be held in Beijing on September 6–9 this year (see <http://www.isipt.org/wcipt/>). We encourage those who are interested in the applications described here to consider attending one of these events and to take part in this exciting new field.

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