7th International Workshop and Summer School on Nonequilibrium Thermodynamics (IWNET2015)

Hilvarenbeek, The Netherlands
5–10 July 2015

Cutting-edge materials science (e.g. processing, final properties, structure-property relations, multiscale strategies) nowadays profits significantly from current nonequilibrium thermodynamics techniques. In the past decades, nonequilibrium thermodynamics has grown to become a well-defined area of research, taking on an increasingly important role in many fields of science and engineering. This advance has also been fostered by a series of International Workshops on Nonequilibrium Thermodynamics (IWNET), see www.nonequilibrium-thermodynamics.org for details. Previous meetings have been held in Montréal (1996), Oxford (2000), Princeton (2003), Rhodes (2006), Cuernavaca (2009), and Røros (2012). In 2015, the seventh workshop in this series (IWNET2015) took place in Hilvarenbeek, the Netherlands, with 74 participants from 22 countries.

The IWNET2015 focused on five topics. For each topic, we started with a summer-school part, which was designed to be useful for everybody, from students to experts in the field, which was followed by the workshop part, reviewing latest developments in the same topic. The five topics and the corresponding invited summer-school lecturers were:

- Fundamental issues in nonequilibrium thermodynamics: Miroslav Grmela and Henning Struchtrup.
- Fundamental underpinnings of and rigorous mathematical results in nonequilibrium thermodynamics: Greg Pavliotis and Mark Peletier.
- Coarse-graining techniques and truly multiscale simulations: Pep Español and Patrick Ilg.
- Role of thermodynamics in modeling the dynamics of complex materials under deformation: Antony Beris (Willem Prins prize recipient) and Bob Svendsen.
- Heterogeneous systems, interfaces, system-boundaries and small systems: Dick Bedeaux and Leonard Sagis.

In all of the above five topics, the main focus was on the nonequilibrium thermodynamics aspects as such, also showcasing limitations, and possible directions for further developments – in line with the spirit of this workshop series. This being said, the power of sound nonequilibrium thermodynamics approaches when applied to problems of engineering relevance has been demonstrated particularly in topics 3 to 5. The detailed program as well as the presentations of the invited lecturers can be found online at www.iwnet2015.org.

The workshop ended with a brain-storming session on possible topics for the eighth workshop (IWNET2018), which will again take place in the Netherlands.

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Figure 1: Participants of the 7th International Workshop and Summer School on Nonequilibrium Thermodynamics (IWNET2015).

Figure 2: Prof. Dr. Antony Beris receiving the Willem Prins prize, awarded by the Delft Association for Polymer Technology (Stichting Polymeertechnologie Delft).

This is an extract of the complete reprint-pdf, available at the Applied Rheology website
http://www.appliedrheology.org

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