

## Rouen Symposium in Advanced Materials

POLYCHAR World Forum on Advanced Materials has been in existence for 21 years before the ROSAM meeting in Rouen. Clearly we are providing something useful to the worldwide science and engineering community. This was a good point in time to take stock of the situation and to consider several questions:

Who are we?  
Where are we going?  
Where should we be going?

We all, participants in ROSAM 2013 as well as the worldwide POLYCHAR community, much appreciate the initiative of *Jean-Marc Saiter and his colleagues* at the University of Rouen and their organization of the ROSAM conference in June 2013 (and the opportunity to see the Rouen Armada 2013, organized only once in four years).

The three general questions formulated above brought up with them further questions, including the following ones:

What should be the contents of POLYCHAR in future years?  
How should Materials Science and Engineering (MSE) be taught since there are a number of us involved in MSE instruction?  
How should we use our professional knowledge to mitigate the pollution and degradation of the environment and to promote sustainability?

Let us provide here just one example related to the last question. Soft drink bottles in the USA are sold in bottles made of poly(ethylene terephthalate) (PET). For six PET bottles sold, only one is recycled. We note immediately that PET bottle recycling, which appears to be a simple process, entails various alternative routes,

each of which has its own impact on the environment.

Related to the last question is also the item: what is sustainability? According to the United Nations Brundtland Commission, “sustainable development is such that *“meets the needs of the present without compromising the ability of future generations to meet their own needs”*. A new tool in this area is the *life cycle analysis*, that is the analytical process used to assess the sustainability of new technologies as well as of methods of recycling and reuse.

There are many papers which provide significant answers to some of the questions posed above. To give just a few examples, Rameshvar Adhikari together with Goerg Michler and their colleagues have created polymer-based nanocomposites in which mechanical properties as well as optical transparency can be varied. Dusan Berek and his colleagues have created nanoporous carbon fibers on the basis of natural cellulose. Gisele Boiteux and her colleagues show how one can affect properties of nitrile rubbers by introduction of ionic liquids. Peter Mallon, Gareth Bailey and Mikael Hedenqvist show how can one lower brittleness of silicon elastomers with nanofibers and carbon nanotubes. Masaru Matsuo, Rong Zhang, Yuezhen Bin and Ru Chen have connected electric conductivity of polymer and carbon composites with viscoelastic behavior. There are many more examples, and on purpose we do not mention papers of our Rouen hosts.

Finally, we would like to connect two of the issues raised above: clearly *teaching MSE has to take into account sustainability and protection of the environment*.

Witold Brostow and Haley E. Hagg Lobland  
University of North Texas

This international symposium has been organized by the Institute for Material Research in collaboration with AMME-LECAP laboratory from the University and INSA of Rouen (France), with AMME-ATEAM laboratory from the University of Nebraska Lincoln (USA) and the laboratory LOMC from the University of Le Havre (France).

The meeting has been sponsored by the Universities of Rouen, Le Havre and Nebraska, by the INSA of Rouen, by the CREA (Rouen city consortium) by the local section of the French Physic Society, and finally by Seine Maritime Expansion.

The scientific comity for Rosam 2013 thanks Professor Pascal Reghem, President of Le Havre University, Professor Laurent Yon, Vice-President for Research from the University of Rouen, Professor Witold Brostow, President of Polychar World Forum Organization and also Professor Mehrdad Negahban Director of AMME-

ATEAM from the University of Nebraska Lincoln for their participation and their talk for the opening session.

More than 150 peoples coming from many foreign countries gave oral and poster presentations. Some, as our colleague and good friend Matsuo Masaru was coming from Japan to stay only the two days of the symposium, others used this opportunity to extend their stay and have a look to the ARMADA. Finally people enjoyed the 'Cheese party'.

Rosam 2013 was also organized to promote the student works and two student prizes have been given to florent simon\* (sms, ea 3233) for him work: Second harmonic generation efficiency in binary eutectic mixtures, vincent ratieuville (pbs) for him work: New polyimide based composite films as ion exchange membranes.

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