



ADVANCED MATERIALS CONFERENCE



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THE PORTUGUESE PRESIDENCY OF THE EUROPEAN UNION

CONFERENCE SUMMARY

The conference had the contribution of 23 outstanding speakers, covering 4 key topics, and representing well the gender balance.

In the first session, dealing with the Impact of Science in Education and Technology Transformations, *Elvira Fortunato*, who was the moderator of the session, started by providing a broad vision of the scope of the conference, emphasizing the need to create in Portugal a cluster in Advanced Materials, open to the European Network. We had also the excellent contribution of the Portuguese Minister for Science, Technology and Higher Education of Portugal, Professor *Manuel Heitor*, who pointed out the extremely relevancy of Advanced Materials for Europe and Portugal, crosscutting different areas of knowledge and application sectors, such as electronics, energy, health and transportation. This was also the message given by the interim president of the European Research Council (ERC), Professor *Jean Pierre Bourguignon* who provided a brief overview of this organization, in particular with respect to the attribution of starting, consolidator, advanced and synergy grants by ERC. Following this intervention, Professor *Jan Hrušák* emphasized the relevance for a sustainable activity, the need of Core Infrastructures. Finally, the president of FCT, Professor *Helena Pereira*, stressed the importance of Advanced Materials to foster Science and Technology in Portugal.

In the second session, dealing with Advanced Materials as Accelerators of the Digital Economy, we had as moderator *Lars Montelius*, who is Director General of INL. We highlight the two first talks dealing with new design and architecture of materials, exploiting machine learning and artificial intelligence tools, given by *Gian-Marco Rignanese* and *Saskia Schimmel*. These topics were well aligned with the following talk on 3D imaging of materials and its role in pushing innovation in the area of Advanced Materials, given by *Ehrenfried Zschech*. We also heard from *Beatrice Fraboni* and *Karl Leo* about materials applications for detection and electronics purposes, namely when eco-sustainable systems are to be processed in flexible foils, using organic and inorganic materials. To complement this session, *Alina Minea* talked about routes to save energy in heat exchange applications and *Pedro Bernardo*, from Bosch, who spoke about embedded electronics in conjunction with smart materials.

In the third session, moderated by *Rogério Colaço*, who is the President of IST, dealt with Materials as Activators and Promoters of Prosperity and Welfare. In this session, we heard

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excellent talks from policy makers in science and responsible to conduct science and technology in Europe and in Portugal, as well as science and education promoters in Europe. Here we highlight the talks given by *Jurgen Tiedje* and *Heléne Chraye* from the European Commission, speaking about the new EU Horizon Europe programme and the contribution of materials to the so-called pillar 4, as well as to the energy European road map. This was complemented by a relevant talk given by Professor *Joana Mendonça*, the president of ANI, Portugal, who expressed the relevance of collaborations between companies and universities for proper knowledge transfer and valorisation. Finally, we heard from *Peter Wellmann*, the president of E-MRS, speaking about advanced materials for electronics, beyond silicon, as a way to diversify and innovate.

The fourth and final session, moderated by *Fátima Montemor*, dealt with Advanced Materials Towards a Sustainable Path. In this session, we learned about materials for energy, such as batteries (*Kristina Edström*) and photovoltaics (*Marko Topič*), their role in the chemical industry and materials synthesis (*João Calado*), as well as functional novel composites (*Constantine Galiotis*). This session was concluded by *Fouzia Honour* who provided a perspective concerning investments trends in advanced materials for the sustainability of the global industry.

The conference was wrapped up with the intervention by *Renzo Tomellini*, the head of the technical secretariat of the Italian Minister of Ecological Transition, who focused on the role of materials in the resilience and recovery plan of Europe, via the circular economy and the raw materials supply.

Finally, we would like to thank the audience and the excellent round table discussions, which we believe have been highly productive for all who attended, in particular for the community dealing with advanced materials.

Thank you very much.

Advanced Materials Cluster, IST|UL & FCT|NOVA

Elvira Fortunato | Rogério Colaço | Fátima Montemor | Paulo Ferreira
João Paulo Borges | Pedro Amaral | Rodrigo Martins

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