DISPUTATIO OF BARCELONA 2017

An annual activity of the Barcelona Knowledge Hub of the Academia Europaea
(23rd November 2017)

The Disputatio of Barcelona 2017

This year the Barcelona Knowledge Hub of the Academia Europaea (AE-BKH) will hold the fifth modern-day Disputatio of Barcelona on **23 November 2017**, at the Institute for Catalan Studies (IEC). The session will take place in the Prat de la Riba Hall of the IEC, from 19.00 to 20.30 h.

The Disputatio of Barcelona 2017 will debate on “SUPERCOMPUTERS: An instrument for science, technology and the progress of society.” The two scholars (disputantes) discussing different aspects of the topic will be **Mateo Valero**, director of the Barcelona Supercomputing Center (BSC), who will present the “science and technology” aspects, and **Alison Kennedy**, director of the STFC Hartree Centre (Daresbury, Warrington, UK), who will present the “progress of the society” aspects. The Disputatio debate will be coordinated by **Enric Banda** (BSC) and **Fabrizio Gagliardi** (BSC). The debate will be followed by a Colloquium with the audience, in which the attendants will address questions of relevance to both disputantes. After the academic session there will be a social drink in the Cloister of the IEC.

The day before, 22 November 2017, from 19.00 to 20.30 h, there will be a Concert at the IEC (also in the Prat de la Riba Hall). The concert will be given by soprano **Marta Mathéu** and pianist and composer **Albert Guinovart**. Guinovart will play an Érard piano from the late 19th century loaned by the Music Museum in Barcelona. The concert, under the title **The European dimension of Felip Pedrell**, will present songs by Felip Pedrell, Manuel de Falla, Joaquín Turina, Enric Granados and Albert Guinovart. After the concert, there will be a social drink in the Cloister.

For more information, please look at:

Attendance is free, but we recommend previous registration by sending an email to Doina Bird, Hub Manager (dbird@iec.cat, or [barcelona@acadeuro.org](mailto:barcelona@acadeuro.org)), to be guaranteed a seat in the main Hall.
About the Disputationes

In the scholastic system of education of the Middle Ages, the Disputationes offered a formalized method of debate designed to uncover and establish truths in theology and in sciences. Fixed rules governed the process: they demanded dependence on traditional written authorities and the thorough understanding of each argument on each side. The famous Disputatio of Barcelona, called for in the summer of 1263 by King James I of Aragon, is the most important and well-known of the inter-faith Disputationes that took place between Christian and Jewish theologians in the late Middle Ages. In the Disputatio of Barcelona of 1263, the disputantes were Friar Paulus Christianus (Dominican, and a convert rabbi) and Rabbi Moses ben Nachman (also known as Nachmanides, or Benastruch De Porta), from the Girona’s community, the most important scholar of Judaism in his time. They discussed theological questions in front of the king and his court, in the presence of the most important men, both Christian and Jewish, of the already prosperous and influential city of Barcelona.

The modern Disputatio of Barcelona 2013-2016

Nowadays, the Disputatio of Barcelona has been successfully recovered. In November 2013, the AE-BKH celebrated its inaugural event by commemorating the 750th anniversary of the medieval Disputatio, and organised a modern one on “Social and state-of-the-art Medicine,” featuring philosopher Thomas Pogge (Yale University, leader of the Health Impact Fund), and neuroscientist Mara Dierssen (Centre for Genomic Regulation, Universitat Pompeu Fabra, UPF, president of the Spanish Society for Neuroscience). The 2013 Disputatio was held at the Saló de Cent, the main assembly room of the City Hall (a Gothic building from the 14th century), on 28 November 2013.

After the success of the first modern Disputatio of Barcelona, in November 2014 the AE-BKH organised, together with the United Nations University Institute on Globalization, Culture and Mobility (UNU-GCM, in Barcelona), a second Disputatio on “The Mediterranean, bridge of cultures.” Two Members of the Academia Europaea, geographer Maria Paradiso (Professor of Geography and Planning at the University of Sannio, Italy), and geophysicist Enric Banda (Director of Science and Environment at “la Caixa” Foundation, Barcelona), presented two views on the topic, covering many different aspects of Mediterranean history, culture, opportunities and present social difficulties. The 2014 Disputatio was held at the Sant Pau Hospital Historical Site, where the UNU-GCM is located, on 27 November 2014.
The third modern-day *Disputatio of Barcelona* was held in December 2015. This debate was also a success, as were the two previous events. Two scholars, **Núria Sebastian** (Vice-President of the European Research Council), and **Ulises Cortés** (from the Barcelona Supercomputing Centre, BSC) discussed on “Natural vs. Artificial Intelligence,” was held at the Royal Chapel of Saint Agatha, in the Gothic Quartier, on 9 December 2015.

The fourth modern-day *Disputatio of Barcelona* was held in November 2016. The debate was devoted to “Natural Life vs. Synthetic Life”. Two scholars, **Anna Veiga** (UPF) and **Ricard Solé** (UPF), discussed the new challenges that the current scientific advancements on the topic present to human society. The event was held at the Palau de la Generalitat (a Gothic palace of the 14th century), under the presidency of the President of Catalonia, M. Hon. Carles Puigdemont, on 21 November 2016. Previously to the meeting, the Board of Trustees of the AE was received by president Puigdemont.

That evening, at the IEC, Lídia Pujol and her group offered a concert under the title of “Iter Luminis,” devoted to the life and work of Ramon Llull.

The day after, 22 November 2016, an InterSection Workshop was held at the IEC, with a topic related to the *Disputatio* debate. The topic discussed was “What is Life?” and was held in remembrance of North-American biologist Lynn Margulis (5 March 1938–22 November 2011). The Chair of the workshop was Christophe Thébaud (Toulouse). The topics and lecturers were: “Extraterrestrial Life”, by Annia Domènech (Out-of-Pluto, Paris), “Astrophysics- Universe”, by Gloria Ga. Cuadrado (Laika Orbit, Barcelona), “Thermodynamics” (and Schrödinger), by David Jou (Autonomous University of Barcelona), “Minimal Life”, by Ricard Guerrero (AE-BKH), “Intelligent Life”, by Mavi Sanchez-Vives (IDIBAPS, Barcelona). And “Artificial Life”, by Javier Macia (Complex Systems Lab, Barcelona Biomedical Research Park, Barcelona). The Workshop ended with a Colloquium with the attendants.
The 2017 Disputatio of Barcelona on 23 of November

On 23 November 2017, from 19.00 to 20.30 h, the Disputatio of Barcelona 2017 will be held in the Institute for Catalan Studies (Prat de la Riba Hall). The topic discussed will be “SUPERCOMPUTERS: An instrument for science, technology and the progress of society.” The debate will be coordinated by Enric Banda (Barcelona Supercomputing Center, BSC) and Fabrizio Gagliardi (BSC), who will introduce the disputantes and manage the Colloquium.

Disputantes:

Mateo Valero, http://www.bsc.es/cv-mateo/, obtained his Telecommunication Engineering Degree from the Technical University of Madrid (UPM) in 1974 and his Ph.D. in Telecommunications from the Technical University of Catalonia (UPC) in 1980. He is a professor in the Computer Architecture Department at UPC, in Barcelona. His research interests focuses on high performance architectures. He has published approximately 700 papers, has served in the organization of more than 300 International Conferences and he has given more than 500 invited talks. He is the director of the Barcelona Supercomputing Centre, the National Centre of Supercomputing in Spain. Dr. Valero has been honoured with several awards. Among them, the Eckert-Mauchly Award 2007 by the IEEE and ACM; Seymour Cray Award 2015 by IEEE; Charles Babbage 2017 by IEEE; Harry Goode Award 2009 by IEEE: ACM Distinguished Service Award 2012; Euro-Par Achievement Award 2015; the Spanish National Julio Rey Pastor award in recognition of research in Mathematics; the Spanish National Award “Leonardo Torres Quevedo” that recognizes research in engineering; the “King Jaime I” in basic research given by Generalitat Valenciana; the Research Award by the Catalan Foundation for Research and Innovation and the “Aragón Award” 2008 given by the Government of Aragón. “Hall of the Fame” member of the ICT European Program (selected as one of the 25 most influents European researchers in IT during the period 1983-2008; Honoured with Creu de Sant Jordi 2016 by Generalitat de Catalunya. He is member of 5 academies, among them the Academia Europaea. He is Honorary Doctorate by 9 Universities. He is fellow of IEEE and ACM and is an Intel Distinguished Research Fellow.

Abstract of his discussion

Supercomputers have been often compared to other scientific instruments such as telescopes, particle accelerators, microscopes etc. They are expensive to build and maintain, they serve a wide scientific community and produce large amounts of data. Like all those other instruments, they are essential enablers of big science, which requires complex natural phenomena simulation and a large amount of data processing. Good examples are precise medicine, climate and weather monitoring and prediction, and development of new materials. In the discussion I will describe the potential for a level of precise modelling enabled by Exascale computing, inconceivable so far, and the technical and economic challenges in achieving it. I will also review the current plans in Europe to develop over the next several years an entire European HPC stack software and hardware, including a low power HPC processor. To this end 7 first European countries signed an agreement, EuroHPC, in Rome on March 23rd this year. The
European Union and its member states felt that without a European supercomputer entirely designed with European technology and competitive enough to be in the top 3 supercomputers in the world, the very same independence and security of Europe will be compromised. BSC is leading this effort with a strong contribution from the major European industrial players in France, Germany, Italy and other countries. The first Exascale system is planned for 2023.

Alison Kennedy, Science and Technology Facilities Council (STFC) Hartree Centre Director, Daresbury Laboratory, Daresbury, Warrington, UK, will talk about the progress of society aspects. The Hartree Centre is funded by the UK government with a remit to improve the global competitiveness of UK industry by facilitating the adoption of High Performance Computing (HPC), High Performance Data Analytics and Cognitive Computing techniques by companies of all sizes. Prior to joining the Hartree Centre, Alison was the Executive Director of EPCC, the national HPC centre based at the University of Edinburgh, and she has recently completed a term of office as the Managing Director and Chair of the Board of Directors of PRACE (Partnership for Advanced Computing in Europe), an association of 24 countries working together for the benefit of Europe. She began her working life as a real time systems programmer in industry, writing operating systems, prior to moving to a role as a software product manager. She has now worked in HPC for about 25 years, initially managing large collaborative projects in HPC and Data, and latterly a HPC centre director. She is also one of the founders of the Women in HPC network, committed to improving inclusivity and diversity in HPC and related fields. Alison Kennedy has a Master of Arts degree in History with Politics and Sociology from the University of Edinburgh, a Bachelor of Arts degree in Technology and Mathematics from the Open University and a post-graduate degree in Business Administration from Heriot-Watt University.

Abstract of her discussion
“Supercomputers and the progress of society.” Europe has an ambitious challenge-led programme of research that reflects the policy priorities of the Europe 2020 strategy and addresses major concerns shared by citizens of Europe and elsewhere. Supercomputers enable sophisticated computer simulation and modelling and complex data analysis across a range of data sources to be undertaken. They play an increasingly important role in helping us to study and solve societal problems and challenges that are too big, too complex, or which extend over too long a period of time, to be tackled by traditional methods such as observation or experiment. Priority areas for Europe include:

* Health, demographic change and wellbeing;
* Food security, sustainable agriculture and forestry, marine and inland water research;
* Secure, clean and efficient energy;
* Smart, green and integrated transport;
* Climate action, environment, resource efficiency and raw materials;
* Europe in a changing world - inclusive, innovative and reflective societies;
* Secure societies - protecting freedom and security of Europe and its citizens.

Her talk presents some examples of how research in these areas, enabled by supercomputers, is contributing to the progress of society and underlines their continuing importance in shaping our future.

The debate will be followed by a Colloquium with the audience, in which the attendants will address questions of relevance to both disputantes.

From 20.30 to 21.30 there will be a social drink in the Cloister of the IEC.
The day before the Disputatio, Wednesday 22 November 2017, from 19.00 to 20.30 h, there will be a Concert at the IEC, in the Prat de la Riba Hall. The concert will be given by soprano Marta Mathéu and pianist and composer Albert Guinovart. Guinovart will play an Érard piano from the late 19th century loaned by the Music Museum in Barcelona. The concert, under the title “The European dimension of Felip Pedrell,” will present songs by Felip Pedrell, Manuel de Falla, Joaquín Turina, Enric Granados and Albert Guinovart. After the concert, there will be a social drink in the Cloister of the IEC.
About the Academia Europaea

The Academia Europaea was founded in London in 1988 as an international, non-governmental, non-profit association of individual scientists and scholars from all disciplines who are experts and leaders in the own subject areas, as recognised by their peers. The Academy is pan-European, with almost 4,000 elected members drawn from the entire European continent and fifteen non-European countries, grouped into 22 academic sections. Members include many recipients of very prestigious awards, such as the Nobel Prize, the Wolf Prize, the Turing Award, the Field Medal, the Lasker Award, the Abel Prize, and the Gödel Prize. The president of the Academia Europaea is Prof. Dr. Sierd Cloetingh, University of Utrecht.

The Academy has four regional hubs: the Wroclaw Knowledge Hub (Poland, for Eastern Europe), the Barcelona Knowledge Hub (the Southern European and Mediterranean Office), the Bergen Knowledge Hub (for Northern Europe), and the Cardiff hub (for the UK and Central Europe).

About the Barcelona Knowledge Hub

The Barcelona Knowledge Hub of the Academia Europaea (AE-BKH) has been operational since 2013. It is the Academia Europaea’s office for the Mediterranean and Southern European region. The AE-BKH focuses on the promotion of activities of interest for the members of the Academia and the scientific community of the region, with special emphasis on multidisciplinary scientific activities that include the perspective of the natural sciences, social sciences and the humanities. The AE-BKH’s goal is to contribute to the consolidation of a genuine European area of innovation, research, and education, especially in the Mediterranean and Southern Europe.

The AE-BKH is supported by three local partners: the Government of Catalonia, represented by the Ministry of Economy and Knowledge, through the Secretariat of Universities and Research, the City Council of Barcelona, and the “La Caixa” Foundation. The hub counts on the collaboration of the Institute for Catalan Studies, in whose premises the hub’s office is located. The current Academic Director is Prof. Dr. Ricard Guerrero, Professor Emeritus of the University of Barcelona and Adjunct Professor of the University of Massachusetts-Amherst. Prof. Guerrero is a Member of the Organismic & Evolutionary Biology Section of the Academia Europaea.
About the Young Academy of Europe (YAE)

The YAE is a pan-European initiative of outstanding, recognized European young scientists and scholars for networking, scientific exchange and science policy. Their dynamic, innovative and outspoken views and advice about the EU-wide Science Policy for the prospering of science in Europe for future generations provides valuable input. The YAE has a pan-European Board, which is elected annually. The current Board has been active since September 2015. It is important to let young scientists’ voices be heard, which opens up communication across disciplinary, national and generational divides, among different fields of scientists and policy makers.

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Partners of the AE-BKH: