



ETP4HPC Newsletter

April – June 2016

Dear ETP4HPC Partners,

This quarter of 2016 has been marked by important new communications from the EC regarding HPC in the broader context of the Digital Single Market and Industry Digitalisation. You can find out more on these new ambitious developments below.

ETP4HPC has made progress on the development of our concept of Extreme-Scale Demonstrators - HPC system prototypes which will serve to test the validity of the technologies produced by the European HPC Eco-system. The first workshop on this topic took place during the European HPC Summit Week and we will be continuing this effort throughout the rest of this year.

We will be soon starting work on our next full edition of the Strategic Research Agenda (SRA). It is our main deliverable - a roadmap for the achievement of HPC Exa-scale capabilities by the European HPC Technology Value Chain, however, it will also reflect the opinion of the entire European HPC environment. We welcome you to contact our [Office](#) if you are interested in this effort.

ETP4HPC Office

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New EU HPC Developments

European Commission Press Release on European Cloud Initiative

22/04/2016



This week the Commission presented its blueprint for cloud-based services and world-class data infrastructure to ensure science, business and public services reap benefits of big data revolution.

This communication sets out the plans to create a new European Open Science Cloud, which will be underpinned by the European Data

Infrastructure. It will focus initially on the scientific community - in Europe and among its global partners -, with the user base being enlarged over time to the public sector and to industry. This initiative is part of a package of measures to strengthen Europe's position in data-driven innovation, to improve competitiveness and cohesion and to help create a [Digital Single Market](#) in Europe. You may continue reading the Commission's press release [here](#).

Highlights of joint meeting of the Telecommunications and Competitiveness Ministers

30/05/2016

May 26-27, 2016, Brussels

"Today we established important milestones for creating a truly digital single market in the EU to facilitate innovation and growth. I strongly encourage all those involved to act quickly and take full advantage of the digital revolution." said by Henk Kamp, Minister for Economic Affairs of the Netherlands, during this meeting.

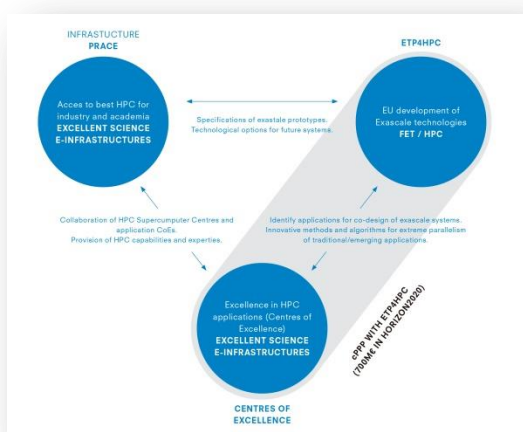


During the [joint meeting the Council](#) assessed progress on the digital single market strategy one year on since the launch of this strategy and agreed on the main principles to ensure portability of online content services in the internal market, adopted conclusions on digital single market technologies and the modernisation of public services, discussed the impact of digitalisation on productivity of the services sector under the competitiveness check-up, and, discussed ways of improving the uptake of space data from European space programmes to create growth and jobs.

To ensure that these and future actions benefit from an innovation-friendly environment, the Council adopted conclusions on better regulation and following a debate on open science, the Council adopted conclusions on the transition towards an open science system. It also adopted conclusions on the lessons learnt from: the 7th research

framework programme; the future outlook; and, the creation of a friendly regulatory environment for research and innovation.

Chairing the Council, Sander Dekker, State Secretary of Education, Culture and Science of the Netherlands, made the following statement: "Open Science is a topic which is very dear to our hearts. During the Netherlands presidency, we have aimed at bringing Europe to the forefront of global change and at leading the transition to a new way of doing research and science based on openness, big data and cloud computing. Open Science breaks down the barriers around universities and ensures that society benefits as much as possible from all scientific insights. In that way we maximize the input of researchers, universities and knowledge institutions". [Continue reading highlights...](#)



Contractual Public-Private Partnership (cPPP) HPC Partnership Board Meeting

02/06/2016

ETP4HPC attended the fifth meeting of the cPPP Partnership Board on the 11th of May 2016 in Prague, where EC representatives, the Centres of Excellence (CoEs), PRACE and ETP4HPC Steering Board members met.

ETP4HPC is the European Commission's partner in the [contractual Public-Private Partnership \(cPPP\) for High-Performance](#)

[Computing](#). The objectives of this cPPP are: to develop the next generation of HPC technologies, applications and systems towards exascale and to achieve excellence in HPC applications delivery and use. The cPPP for HPC covers two pillars of the European HPC eco-system: technology provision and application expertise.

During this meeting, Marcin Ostasz, an ETP4HPC office expert, gave an update on its international collaboration activities, where the outcomes of last year's Bird-of-a-Feather Session at SC'15 was presented and also that of this year's BoF, which is at the approval stage. Michael Malms, also an ETP4HPC office expert and their SRA leader, gave a presentation on updated SRA (SRA 2), which was issued in November 2015. There was also a discussion on a roadmap for large scale demonstrators. The next SRA is scheduled to be issued in 2017 and work will start on this during the second half of 2016. Jean-Philippe Nominé commented that the status of the cPPP annual report is being prepared by ETP4HPC office.

The EC gave a brief presentation on The European Cloud Initiative and HPC strategy, where several points were highlighted: the Communication states clearly the ambition to have a European source of technology in the HPC ecosystem; additional investments will be required to achieve the initiative's goals; there is a clear message for the integration of technologies in larger Projects; the IPCEI (international project of common European interest) mentioned in the Communication is to be largely supported by Member States, comes in addition to the cPPP - the project needs to be checked by DG COMP on State Aid compliance with internal market rules; the Co-design approach is paramount, making sure that users are involved; the CoEs on HPC can also become innovation hubs with regard to the digitalisation of industry; the cPPP on Big Data and on HPC should work together more

closely; there is a common paper endorsed by both cPPPs; and, the Governance of the European Cloud Initiative will be in the coming months.

The next cPPP Board meeting will take place on 8th of November in Brussels.

Presentations:

- [ETP4HPC SRA Update](#)
 - [EC presentation on European Cloud Initiative, given during PRACE Days 16](#)
-

ETP4HPC New Activities and Members

New ETP4HPC Members – April to June 2016

ETP4HPC is growing in size and momentum as more organisations join us as new members. Since the end of March 2016 we have experienced an influx of new comers, and had the pleasure of welcoming seven new members. These are as follows:

Full members:

- Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) - Research organisation
- University of Luxembourg – Research organization
- IT4Innovations National Supercomputing Center

Associated members:

- The Numerical Algorithms Group (NAG) Ltd./Inc - SME
- Quantum ESPRESSO Foundation – Association
- Simula Research Laboratory

Associated Individual member:

- Pr. Sabri Pllana, Linnaeus University, Sweden - an Associate Professor at the Department of Computer Science of the Linnaeus University in Sweden.

Change in membership status:

- Cray - Global organisation (changed membership from Associated to Full member)



[ENEA](#) is a governmental non-profit research and development organisation and the missions of ENEA ICT Division are the operation of hardware and software infrastructures and R&D activities.



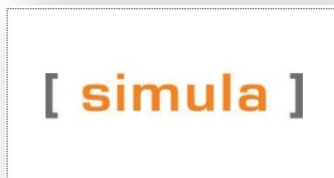
[The University of Luxembourg](#) (UL) is a Public Institution of Higher Education and Research. The UL HPC department organises, administrates and develops the existing HPC environment at the University of Luxembourg.



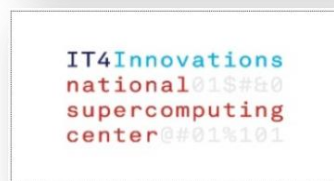
[NAG](#) is a not-for-profit SME that develops numerical software libraries, and delivers a range of services in HPC from procurement advice all the way through to application development and code optimisation.



[Quantum Espresso Foundation](#) is a non-profit organisation, which fosters and supports the design, implementation, maintenance, and free dissemination of high-quality, high-performance open-source scientific software for ab-initio quantum numerical modelling of materials.



[Simula Research Laboratory](#) is organised as a limited company owned by the Ministry of Education and Research, and its main objective is to create knowledge about fundamental scientific challenges that are of genuine value to society.



[IT4Innovations National Supercomputing Center](#) delivers scientifically excellent and relevant research in the fields of high performance computing, and operates the Salomon supercomputer.



[Cray Supercomputing Company](#) which builds innovative systems and solutions that enable scientists and engineers in academia, government and industry, to meet existing and future simulation and analytics challenges.

[Pr. Sabri Pllana](#) is an Associate Professor at the Department of Computer Science of the Linnaeus University in Sweden.
<http://homepage.lnu.se/staff/saplaa/>

ETP4HPC New Working Groups

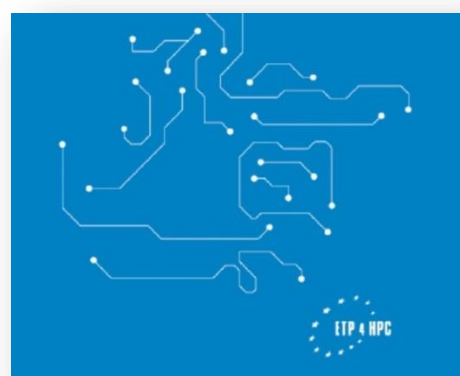
06/06/2016

ETP4HPC has two new working groups, which are in the process of kicking off. These two new groups are: the HPC Software working group which will be led by Michele Weiland and Mark Parsons, both from [EPCC](#), and the Energy Efficiency working group which will be led by Michael Ott of [LRZ](#).

These two new groups will compliment ETP4HPC existing SRA working groups*, which focus on the upfront definition of R&D&I HPC topics and priorities. Here the objective is to support and foster: the dissemination and strengthen the impact of R&D outcomes – making the results of projects that have been funded by EU programmes more visible, effective and used.

The motivation in setting-up the HPC Software group is the following: Scalable software key to Exascale success - If scientific software does not scale, how can we exploit Exascale systems?; the need to increase long-term impact of software - Many projects, national or H2020, produce software and need to increase software reuse and improve quality; and, Software engineering for extreme scale parallelism must be better understood - How many scientific software developers are also trained in software engineering?.

The topics that will be addressed are: Scalability - Collating information on scalability of HPC software (including applications, system level software and libraries) and, which



domains do well and which are lagging behind?; defining best practice in software engineering and software design for HPC - What should the software development process entail?; and, Sustainability - Making software outputs more easily 'discoverable', Introduce an Open Source HPC software repository?, and to increase the quality and introduce a software quality seal.

The Energy Efficiency working group has the intention of working with potential members such as: HPC Centres, Hardware vendors, System Software providers, and end-users. Its focus will be based on the promotion of energy-efficient design and use of HPC systems and infrastructures, with the following tasks: Liaise with the FET HPC project on topics relevant to energy efficiency; Establish and promote methods and metrics to assess energy efficiency at the infrastructure, system, and node level; Define tools and means to monitor and optimize energy efficient operation; and, Establish dialogue with SRA Energy & Resiliency WG to bring extra value or insight.

** SRA working groups are: HPC System Architecture and Components; System Software and Management, Programming Environment; Energy and Resilience; Balance Compute; I/O and Storage Performance; Big Data and HPC usage Models; Mathematics and algorithms; and, Extreme-scale Demonstrators. ETP4HPC also has a SME WG.*

Recent Events

ETP4HPC at the European HPC Summit Week, May 9-12, 2016, Prague



Dr. Michael Malms presented the SRA2 during the EXDCI Workshop

09/05/2016

The European HPC Summit Week 2016 started today, May 9th, in Prague, and will continue until Thursday 12th. The summit week started with the EXDCI workshop during which Dr. Michael Malms presented ETP4HPC's Update on its [Strategic Research Agenda](#) (SRA2).

The ETP4HPC Strategic Research Agenda (SRA) is our key deliverable. It is a document that outlines a roadmap for the achievement of exa-scale capabilities by the [European High-Performance Computing \(HPC\) ecosystem](#). The milestones set in the SRA are used to define the contents of the HPC Technology R&D Work Programmes managed by the European Commission.

The SRA tackles the development of European HPC technology across the following areas: HPC System Architecture and Components, Energy and Resiliency, Programming Environment, System Software and Management, Big Data and HPC usage Models, Balance Compute, I/O and Storage Performance, Mathematics and algorithms for extreme scale HPC systems and Extreme scale demonstrators (the latter two were not present in the first SRA).

Other presentations during today's workshop were made by the [Centres of Excellence](#) and by the [FETHPC Projects](#).



ETP4HPC Chair giving Keynote during PRACE DAYS 16, Prague

11/05/2016

During this morning's session of the 2nd day of [PRACE DAYS 16](#), at the [European HPC Summit Week 2016](#), Prague, Jean-François Lavignon gave his Keynote on the

Development of HPC technology to serve the European HPC ecosystem.

The European HPC ecosystem is based on three pillars: technology provision (represented by [ETP4HPC](#)), the pan-European research infrastructure (represented by [PRACE](#) – Partnership for Advanced Computing in Europe) and application expertise (represented by the [Centres of Excellence in Computing Application](#)). The balanced evolution of these three elements ensures the development of a globally competitive HPC ecosystem that benefits the European economy and citizen. The EXDCI project (European Extreme Data and Computing Initiative) coordinates the implementation of the European HPC strategy.

The three pillars interact in order to form a coherent HPC environment in which the needs of all users are met, whilst the technology provision pillar and the applications pillar participate in a [contractual Public-Private Partnership](#) with the EC.

Prace Days16 Photo Gallery



ETP4HPC Extreme-Scale Demonstrators Workshop,

May 12, 2016, Prague

12/05/2016

ETP4HPC held their Extreme-scale Demonstrator Workshop on the 12th May 2016 during the last day of the European HPC Summit Week in Prague.

This workshop was organised within the EXDCI project with the aim to provide a key input for the preparation of the EsD Calls for Proposals that the ETP4HPC will suggest in Work Programme 2018/19. It was also an opportunity for the stakeholders to network and interact.

The workshop was attended by representatives of FETHPC and other European HPC Technology projects, Centres of Excellence in Computing Applications and PRACE, which entailed all of European HPC Eco-system stakeholders, i.e. the developers and providers of HPC technology (including potential system integrators of the EsDs), application communities, infrastructure providers and a representative of the Commission in a discussion on the following topics in relation to the EsDs:

The main technical EsD characteristics and performance targets:

- Defining a suite of challenging pre-exascale problems to validate the EsDs instances, together with examples of possible applications
- The options for funding and project implementation (including a detailed timetable)
- Identifying potential parties interested in participating to the EsD calls
- The HPC Technology Projects, Centres of Excellence for Computing Applications and other organisations provided presentations on their opinion of this proposal and their potential contribution to an EsD project.
- [Main Presentation by ETP4HPC](#)

You can see their slide presentations below:

- [Presentation Break-down](#)
- [All Presentations](#)

This workshop proved to be productive as there was much interaction, with many ideas and questions being put forward from all areas. Due to the success of this workshop and to further facilitate input for the preparation of the EsD Calls for Proposals, ETP4HPC is organising a [follow-up workshop at ISC'16](#) - on 23rd June 2016, titled: 'Extreme-Scale Demonstrators – 2nd Discussion Round - Outlining EsD System Characteristics'.

EsD Workshop Photo Gallery



BDEC Closed Workshop, June 16-17, Frankfurt

17/06/2016

ETP4HPC participated in the Big Data and Extreme-Scale Computing (BDEC) 4th closed workshop, on 16 & 17 of June, in Frankfurt. BDEC brings together experts from the U.S.A., Japan and Europe on Big Data and exascale developments. This edition of the closed workshop focused



on “Pathways to Convergence” between big data and exascale computing. In addition, there were the traditional overviews of international roadmaps, invited keynotes and breakout groups.

Marcin Ostasz, our office expert, gave a [presentation](#) on the European HPC eco-system and on Extreme-scale demonstrators.

ETP4HPC at ISC'16, June 20-23; 2016, Frankfurt

ETP4HPC at ISC'16, 20–22 June, Frankfurt

22/06/2016

ISC'16 got off to a great start on Monday afternoon, where booths both small and big - 146 exhibitors - were ready to receive visitors and show their wares. There was a buzz in the air over the three day event, a feast of HPC and exascale innovation, as networking and collaboration were in full swing, and new hardware and software was discovered. The ETP4HPC team was at booth #413 where members and visitors could discuss and discover more about our update on the Strategic Research Agenda and the latest details on the development of European HPC Technology.

On Monday, Satoshi Matsuoka started events by giving an over view of the programme. During the course of the three day event there were many key note presentations, BoF sessions and workshops given on exascale supercomputing, which included: breaking news on the No. 1 on the latest Top500 list – the Chinese system, Sunway TaihuLight and Intel's XeonPhi; European exascale projects etc.. Jean-François Lavignon, our chair, gave a presentation on the HPC European ecosystem, which included the four dimensions of the SRA (Strategic Research Agenda).

The topics of focus in this year's event were: Big Data and HPC Convergence; Performance Modeling and Prediction; Advanced Disaster Prediction and Mitigation; State of the Art in Life Science & Computational Systems Biology; Challenges in Extreme Engineering; Exascale Architectures: Disruptions, Denials & Directions; Algorithms for Extreme Scale in Practice; HPC in IoT and Robotics; Deep Learning; Basics and Applications; and, Connected Cars and Big Data.

ETP4HPC will be hosting a workshop on Thursday the 23rd at ISC'16.

ISC'16 Photo Gallery



ETP4HPC Workshop at ISC'16, 23rd of June, Frankfurt

27/06/2016

ETP4HPC held a workshop (full day) 'Outlining EsD System Characteristics' – the 2nd EsDs discussion - at the ISC'16 on the 23rd of June in Frankfurt. There was a great attendance with around 60 people representing different HPC user profiles.

This workshop, the second of two, was based on Extreme-scale demonstrators, and was geared towards the preparation of the final text of the call for Extreme-scale demonstrators. During the course of the morning there were six presentations based on use cases, these were given by Erwin Laure, Thomas Eickermann and Marc Duranton.

During the afternoon session, discussions were held on the 'Identification of preferred meta level HPC system characteristics – Part 2', and presentations were given on recommendations and next steps in: EsD budget requirements by Malcolm Muggeridge; Procurement options by Dirk Pleiter, and, Composition of consortia-roles and tasks by Thomas Eickermann.

This is the last workshop related to this call. A proposal will be prepared based on the information shared and discussed and will then be presented to the European Commission.

2nd EsD Workshop Photo Gallery



ETP4HPC at Teratec Forum, June 228-29; 2016, Paris

28/06/2016

ETP4HPC participated in this year's Teratec 2016 Forum - its 11th edition - between June 28th and 29th at *École Polytechnique* in Palaiseau, France. This forum, hosted by the Teratec Association, is one of the major events in France and Europe, which is a gathering for top international experts in high performance computing, Big data and simulation and shows the strategic importance of these technologies for developing industrial competitiveness and innovation capacity.

The [TERATEC Forum](#) welcomed more than 1,200 attendees, which demonstrated the technological and industrial dynamism of high-performance computing, Big data and simulation both in France and Europe. ETP4HPC was present at Booth # 10, and over 15 of approximately 70 exhibitors were members.

The French minister, Thierry Mandon, opened proceedings on the exhibit hall, by visiting booths such as Bull/Atos Technologies, where Jean-François Lavignon, our Chair, presented their sequana range of supercomputers. Other [familiar faces](#) could be seen conversing with Minister Mandon as they showed their wares. In his opening speech he expressed the importance of HPC for research, industry, medicine and SMEs.

Teratec Forum Photo Gallery



Other News

Mateo Valero, Director of BSC, makes a pledge for developing a strong HPC ecosystem

18/04/2016

Mateo Valero, Director of Barcelona Supercomputing Center, makes a pledge for developing a strong HPC ecosystem a week before the EU Commission tables its proposals for the Digitising EU industry.

Mateo Valero, Director of Barcelona Supercomputing Center, makes a pledge for developing a strong HPC ecosystem a week before the EU Commission tables its proposals for the Digitising EU industry. He agrees with Commissioner

Günther H. Oettinger, that there is an “urgent need for European industry to take the necessary steps in order to fully benefit from the opportunities of the digital single market”. He continues, however, by saying “for this transformation to be sustainable, Europe needs to strengthen the fundamental research on which digital transformation is based and a stronger European High Performance Computing (HPC) ecosystem”.

Read more at: http://ec.europa.eu/commission/2014-2019/oettinger/blog/mateo-valero-director-barcelona-supercomputing-center_en



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Mathematics for Europe - Report on open consultation

23/06/2016

Consultation closed on Mathematics for Horizon 2020 next Work Programme

The 'Open consultation on Mathematics for horizon 2020 next Work Programme' which was open online from the 29th of January to the 15th of May is

now closed. This was opened in the context of a stakeholder consultation to prepare the Horizon 2020 Work Programme 2018-2020 with innovative mathematical content and by the European Commission Directorate General for Communications Networks, Content & Technology (DG CONNECT).

There were two facts that motivated this open consultation: "today's digital society depends on mathematics and algorithms; there is a vast pool of mathematical talent in Europe", with the conclusion that Europe can be first in mathematical applications for big data, computing and especially HPC, and to be first in modern science and innovation. ETP4HPC participated in this consultation process by submitting the corresponding chapter of our [SRA](#) (Strategic Research Agenda).

The [report and its annex](#) are now available on the [Futurium Digital4Science](#). The Annex includes the majority of the contributions submitted and these appear in their original form.

Jean Gonnord, Vice-chair of ETP4HPC, awarded '2016 Simulation Personality'

29/06/2016

Jean Gonnord, Vice-chair of ETP4HPC, was awarded the "*personnalité de la simulation 2016*" (2016 Simulation Personality) Trophy by *Usine Digitale* magazine and the Teratec Association, during the [Teratec 2016 Forum](#) - 11th edition - at *École Polytechnique* in Palaiseau, France.

Now the CEO's Special Advisor for HPC at CEA, Jean was for almost 20 years the Programme Director for Numerical Simulation at CEA. He was especially in charge of TERA projects (TERA 1, TERA 10, TERA 100, and the launch of TERA 1000 which is currently being deployed), which from TERA 10 onward gradually involved more co-design between the CEA and Bull teams. In 2010, TERA 100 was the first petascale supercomputer designed in Europe and the first-of-a-kind, which became the commercially and very successful "bullx" line of supercomputers. Over the last few years, Jean has become very active in the promotion of European HPC and in the support of related initiatives and programmes, such as ETP4HPC – he is a founding member of our association – as well as the Horizon 2020 HPC Public Private Partnership, and more recently the IPCEI (Important Project of Common European Interest) on HPC and Big Data Applications.

We at ETP4HPC would like to congratulate him on this award!



Supercomputing: a key cornerstone of the data-driven European economy

20/05/2016

'Europe is in the middle of an economic revolution, and this revolution is digital. By being able to process the current explosion of data, High Performance Computing (HPC) is at the core of major advances and innovation in the digital age'.



'Whilst supercomputers have been around since the 1960s, experts all across the world agree that they will soon reach the height of their fame. The nature of computing is changing with an increasing number of data-intensive critical applications: by 2020, 25 billion devices will be connected and will generate over two zettabytes of traffic every year. With the [European Cloud Initiative](#), the European Commission will provide researchers, industry, SMEs and public authorities with world-class supercomputers that bring state of the art computing and data storage capacity needed to excel in data-driven science and in the digital economy. The objective is to see a supercomputer based on EU technology among the world top three by 2022'.

Continue reading this article by CORDIS of the European Commission at:
http://cordis.europa.eu/article/id/400005-supercomputing-key-cornerstone-data-driven-European-economy_en.html

ETP4HPC Upcoming Events

Supercomputing'16, November 13-18 2016, Salt Lake City

From 13/11/2016 to 18/11/2016

Salt Lake City, November 13th to 18th, 2016

ETP4HPC will attend [SC16, Supercomputing 2016](#) (13-18 November 2016, Salt Lake City) with the objective of continuing the presentation of the European HPC Technology Eco-system, following the success of the [Bird-of-a-Feather session at SC15](#).

We will also be involved in an EXDCI intuitive presenting the entire HPC Eco-system in Europe. More details to follow.



3rd International Conference on Research Infrastructures (ICRI 2016), October 3-5, 2016, Cape Town, South Africa

From 03/10/2016 to 05/10/2016

ICRI 2016 is the unique forum to structure international collaboration on global Research Infrastructures. Issues addressed range from long-term sustainability, openness and



socio-economic impact to science diplomacy, partnerships, human resources as well as development and innovation.

<http://www.etp4hpc.eu/en/events/3rd-international-conference-on-research-infr-353.html>

Research Agorà at the International CAE Conference, October 17-18, 2016, Parma, Italy

From 17/10/2016 to 18/10/2016

The [International CAE Conference](#) on October 17-18, 2016, in Parma (Italy) will host the 2016 edition of the [Research Agorà](#), an area dedicated to the dissemination of Research Projects and where one can meet a variety of business stakeholders interested in the latest cutting-edge achievements on Europe's investing sectors, such as HPC, biomedical, aerospace, manufacturing and energy. Similar to previous years, ETP4HPC plans to be represented there.

<http://www.etp4hpc.eu/en/events/research-agera-at-the-international-cae-confe-351.html>

