



**SEVENTH FRAMEWORK PROGRAMME  
Research Infrastructures**

**INFRA-2012-2.3.1 – Third Implementation Phase of the European  
High Performance Computing (HPC) service PRACE**



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**PRACE Third Implementation Phase Project**

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Report on the DECI Call**

***Final***

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## References and Applicable Documents

- [1] <https://deci-peer-review.cines.fr/login>
- [2] <http://www.prace-project.eu/PRACE-Digest>
- [3] <http://www.prace-project.eu/DECI-11-Call>
- [4] <http://www.prace-project.eu/DECI-12-Call>

## List of Acronyms and Abbreviations

AAA	Authentication, Authorization, Accounting.
ACF	Advanced Computing Facility
ADP	Average Dissipated Power
AISBL	Association Internationale Sans But Lucratif (legal form of the PRACE-RI)
AISBL	Association sans but lucrative (legal form of the PRACE RI)
AMD	Advanced Micro Devices
APGAS	Asynchronous PGAS (language)
API	Application Programming Interface
APML	Advanced Platform Management Link (AMD)
ASIC	Application-Specific Integrated Circuit
ATI	Array Technologies Incorporated (AMD)
BAdW	Bayerischen Akademie der Wissenschaften (Germany)
BCO	Benchmark Code Owner
BLAS	Basic Linear Algebra Subprograms
BSC	Barcelona Supercomputing Center (Spain)
CAF	Co-Array Fortran
CAL	Compute Abstraction Layer
CCE	Cray Compiler Environment
ccNUMA	cache coherent NUMA
CEA	Commissariat à l'énergie atomique et aux énergies alternatives
CGS	Classical Gram-Schmidt
CGSr	Classical Gram-Schmidt with re-orthogonalisation
CINECA	Consorzio Interuniversitario, the largest Italian computing centre (Italy)
CINES	Centre Informatique National de l'Enseignement Supérieur (represented in PRACE by GENCI, France)
CLE	Cray Linux Environment
CPU	Central Processing Unit

CSC	Finnish IT Centre for Science (Finland)
CSCS	The Swiss National Supercomputing Centre (represented in PRACE by ETHZ, Switzerland)
CSR	Compressed Sparse Row (for a sparse matrix)
CUDA	Compute Unified Device Architecture (NVIDIA)
DARPA	Defense Advanced Research Projects Agency
DDN	DataDirect Networks
DDR	Double Data Rate
DEISA	Distributed European Infrastructure for Supercomputing Applications. EU project by leading national HPC centres.
DECI	Distributed Extreme Computing Initiative
DGEMM	Double precision General Matrix Multiply
DIMM	Dual Inline Memory Module
DMA	Direct Memory Access
DNA	DeoxyriboNucleic Acid
DP	Double Precision, usually 64-bit floating point numbers
DRAM	Dynamic Random Access memory
EC	European Community
EESI	European Exascale Software Initiative
EoI	Expression of Interest
EP	Efficient Performance, e.g., Nehalem-EP (Intel)
EPCC	Edinburg Parallel Computing Centre (represented in PRACE by EPSRC, United Kingdom)
EPSRC	The Engineering and Physical Sciences Research Council (United Kingdom)
eQPACE	extended QPACE, name of the FZJ WP8 prototype
ETHZ	Eidgenössische Technische Hochschule Zuerich, ETH Zurich (Switzerland)
ESFRI	European Strategy Forum on Research Infrastructures; created roadmap for pan-European Research Infrastructure.
EX	Expandable, e.g., Nehalem-EX (Intel)
FC	Fiber Channel
FFT	Fast Fourier Transform
FHPCA	FPGA HPC Alliance
FP	Floating-Point
FPGA	Field Programmable Gate Array
FPU	Floating-Point Unit
FZJ	Forschungszentrum Jülich (Germany)
GASNet	Global Address Space Networking
GB	Giga (= $2^{30} \sim 10^9$ ) Bytes (= 8 bits), also GByte
Gb/s	Giga (= $10^9$ ) bits per second, also Gbit/s
GB/s	Giga (= $10^9$ ) Bytes (= 8 bits) per second, also GByte/s
GCS	Gauss Centre for Supercomputing (Germany)
GDDR	Graphic Double Data Rate memory
GÉANT	Collaboration between National Research and Education Networks to build a multi-gigabit pan-European network, managed by DANTE. GÉANT2 is the follow-up as of 2004.
GENCI	Grand Equipement National de Calcul Intensif (France)
GFlop/s	Giga (= $10^9$ ) Floating point operations (usually in 64-bit, i.e. DP) per second, also GF/s
GHz	Giga (= $10^9$ ) Hertz, frequency = $10^9$ periods or clock cycles per second

GigE	Gigabit Ethernet, also GbE
GLSL	OpenGL Shading Language
GNU	GNU's not Unix, a free OS
GPGPU	General Purpose GPU
GPU	Graphic Processing Unit
GS	Gram-Schmidt
GWU	George Washington University, Washington, D.C. (USA)
HBA	Host Bus Adapter
HCA	Host Channel Adapter
HCE	Harwest Compiling Environment (Ylichron)
HDD	Hard Disk Drive
HE	High Efficiency
HET	High Performance Computing in Europe Taskforce. Taskforce by representatives from European HPC community to shape the European HPC Research Infrastructure. Produced the scientific case and valuable groundwork for the PRACE project.
HMM	Hidden Markov Model
HMPP	Hybrid Multi-core Parallel Programming (CAPS enterprise)
HP	Hewlett-Packard
HPC	High Performance Computing; Computing at a high performance level at any given time; often used synonym with Supercomputing
HPCC	HPC Challenge benchmark, <a href="http://icl.cs.utk.edu/hpcc/">http://icl.cs.utk.edu/hpcc/</a>
HPCS	High Productivity Computing System (a DARPA program)
HPL	High Performance LINPACK
HT	HyperTransport channel (AMD)
HWA	HardWare accelerator
IB	InfiniBand
IBA	IB Architecture
IBM	Formerly known as International Business Machines
ICE	(SGI)
IDRIS	Institut du Développement et des Ressources en Informatique Scientifique (represented in PRACE by GENCI, France)
IEEE	Institute of Electrical and Electronic Engineers
IESP	International Exascale Project
IL	Intermediate Language
IMB	Intel MPI Benchmark
I/O	Input/Output
IOR	Interleaved Or Random
IPMI	Intelligent Platform Management Interface
ISC	International Supercomputing Conference; European equivalent to the US based SC0x conference. Held annually in Germany.
IWC	Inbound Write Controller
JSC	Jülich Supercomputing Centre (FZJ, Germany)
KB	Kilo (= $2^{10} \sim 10^3$ ) Bytes (= 8 bits), also KByte
KTH	Kungliga Tekniska Högskolan (represented in PRACE by SNIC, Sweden)
LBE	Lattice Boltzmann Equation
LINPACK	Software library for Linear Algebra
LLNL	Lawrence Livermore National Laboratory, Livermore, California (USA)
LQCD	Lattice QCD
LRZ	Leibniz Supercomputing Centre (Garching, Germany)

LS	Local Store memory (in a Cell processor)
MB	Mega (= $2^{20} \sim 10^6$ ) Bytes (= 8 bits), also MByte
MB/s	Mega (= $10^6$ ) Bytes (= 8 bits) per second, also MByte/s
MDT	MetaData Target
MFC	Memory Flow Controller
MFlop/s	Mega (= $10^6$ ) Floating point operations (usually in 64-bit, i.e. DP) per second, also MF/s
MGS	Modified Gram-Schmidt
MHz	Mega (= $10^6$ ) Hertz, frequency = $10^6$ periods or clock cycles per second
MIPS	Originally Microprocessor without Interlocked Pipeline Stages; a RISC processor architecture developed by MIPS Technology
MKL	Math Kernel Library (Intel)
ML	Maximum Likelihood
Mop/s	Mega (= $10^6$ ) operations per second (usually integer or logic operations)
MoU	Memorandum of Understanding.
MPI	Message Passing Interface
MPP	Massively Parallel Processing (or Processor)
MPT	Message Passing Toolkit
MRAM	Magnetoresistive RAM
MTAP	Multi-Threaded Array Processor (ClearSpeed-Petapath)
mxm	DP matrix-by-matrix multiplication mod2am of the EuroBen kernels
NAS	Network-Attached Storage
NCF	Netherlands Computing Facilities (Netherlands)
NDA	Non-Disclosure Agreement. Typically signed between vendors and customers working together on products prior to their general availability or announcement.
NoC	Network-on-a-Chip
NFS	Network File System
NIC	Network Interface Controller
NUMA	Non-Uniform Memory Access or Architecture
OpenCL	Open Computing Language
OpenGL	Open Graphic Library
Open MP	Open Multi-Processing
OS	Operating System
OSS	Object Storage Server
OST	Object Storage Target
PCIe	Peripheral Component Interconnect express, also PCI-Express
PCI-X	Peripheral Component Interconnect eXtended
PGAS	Partitioned Global Address Space
PGI	Portland Group, Inc.
PI	Principal Investigator
pNFS	Parallel Network File System
POSIX	Portable OS Interface for Unix
PPE	PowerPC Processor Element (in a Cell processor)
PRACE	Partnership for Advanced Computing in Europe; Project Acronym
PSNC	Poznan Supercomputing and Networking Centre (Poland)
QCD	Quantum Chromodynamics
QCDOC	Quantum Chromodynamics On a Chip
QDR	Quad Data Rate
QPACE	QCD Parallel Computing on the Cell



QR	QR method or algorithm: a procedure in linear algebra to compute the eigenvalues and eigenvectors of a matrix
RAM	Random Access Memory
RDMA	Remote Data Memory Access
RISC	Reduce Instruction Set Computer
RNG	Random Number Generator
RPM	Revolution per Minute
SAN	Storage Area Network
SARA	Stichting Academisch Rekencentrum Amsterdam (Netherlands)
SAS	Serial Attached SCSI
SATA	Serial Advanced Technology Attachment (bus)
SDK	Software Development Kit
SGEMM	Single precision General Matrix Multiply, subroutine in the BLAS
SGI	Silicon Graphics, Inc.
SHMEM	Share Memory access library (Cray)
SIMD	Single Instruction Multiple Data
SM	Streaming Multiprocessor, also Subnet Manager
SMP	Symmetric MultiProcessing
SNIC	Swedish National Infrastructure for Computing (Sweden)
SP	Single Precision, usually 32-bit floating point numbers
SPE	Synergistic Processing Element (core of Cell processor)
SPH	Smoothed Particle Hydrodynamics
SPU	Synergistic Processor Unit (in each SPE)
SSD	Solid State Disk or Drive
STFC	Science and Technology Facilities Council (represented in PRACE by EPSRC, United Kingdom)
STRATOS	PRACE advisory group for STRAtegic TechnOlogieS
STT	Spin-Torque-Transfer
SURFsara	Dutch national High Performance Computing & e-Science Support Center
TARA	Traffic Aware Routing Algorithm
TB	Tera (= 240 ~ 1012) Bytes (= 8 bits), also TByte
TCO	Total Cost of Ownership. Includes the costs (personnel, power, cooling, maintenance, ...) in addition to the purchase cost of a system.
TDP	Thermal Design Power
TFlop/s	Tera (= 1012) Floating-point operations (usually in 64-bit, i.e. DP) per second, also TF/s
Tier-0	Denotes the apex of a conceptual pyramid of HPC systems. In this context the Supercomputing Research Infrastructure would host the Tier-0 systems; national or topical HPC centres would constitute Tier-1
UFM	Unified Fabric Manager (Voltaire)
UNICORE	Uniform Interface to Computing Resources. Grid software for seamless access to distributed resources.
UPC	Unified Parallel C
UV	Ultra Violet (SGI)
VHDL	VHSIC (Very-High Speed Integrated Circuit) Hardware Description Language



## Executive Summary

This is a report on the DECI (Distributed Extreme Computing Initiative) calls which took place within the T2.6 task. It also includes recommendations and plans for future DECI Calls. Statistics are presented for the relevant DECI calls which give an overview of the number and type of proposals received and those funded. This report focuses on the DECI-11 and DECI-12 calls which were handled entirely within T2.6. Special mention is made of the new on-line submission system, the PRACE Peer Review (PPR) tool [1], developed by CINES which came into operation for DECI-11 giving rise to a big improvement to the way in which DECI proposals are handled. The efficiency of the PPR tool was of particular importance for DECI-11 as we received a record number of proposals for this call (117 of which 115 were eligible). The number of proposals received for the most recent call, DECI-12, was lower with 61 proposals received (still a large number of proposals), but this was expected as the call was not advertised as widely and the call was open for less time than usual (just under 5 weeks which included the Christmas holiday period compared with approximately 6 weeks for most DECI calls including no major holiday periods). The reason why this lower number was intended was that DECI-12 will have to run partly after the end of PRACE-3IP and so will have fewer resources available in terms of number of machines, CPU hours and staff effort. DECI continues to be popular with Principal Investigators (PIs) and the number of proposals remains high. Scientific results are not described in this document as they are highlighted in the PRACE Digest 3/2013 [2].

## 1 Introduction

When task 2.6 began, a number of DECI projects were already up and running as part of previous DECI calls. The task of T2.6 was firstly to manage the transition between PRACE-2IP and PRACE-3IP and then to deal with the management of further DECI calls. Figure 5 shows how all the calls from DECI-9 onwards were managed by the PRACE-2IP and PRACE-3IP projects.

This report begins with an overview of the DECI process from the opening of a call through to reviewing and then on to running the calls and final reporting. There then follows a summary of the DECI-9 and DECI-10 projects which were already running under PRACE-2IP. More details are then given for the DECI-11 and DECI-12 calls which have been run entirely under task 2.6 including important statistics on submission and acceptance of projects throughout this period. This is followed by the discussion of relevant outreach highlighting the two DECI Mini-symposia which took place recently. Finally some discussion is given about future DECI calls.

All DECI projects from DECI call 7 (the first DECI call to be opened under PRACE, opened as a “pilot” call) to DECI-8 should have been completed before July 2012. The only exceptions being a very small number of projects given long extensions due to extenuating circumstance, or the small number of projects where we were still awaiting the corresponding final report. These projects are not discussed here as these projects have been reported on in the deliverables D2.2 and D2.3 of PRACE-2IP.

## 2 The DECI process

The DECI process for DECI-11 and DECI-12 remained largely unchanged from previous calls other than the introduction of the new PPR tool described in section 2.2. The following is a summary of the process where any changes to the procedure are highlighted.

### 2.1 Opening a DECI call

Preparations for opening a DECI call are made approximately 6 weeks before a call is opened. This process requires the collecting of information about which sites intend to participate in the call along with more detailed information about the computing resources on offer. The dates for opening and closing the call are then agreed by the partners involved. All of this information is summarised in the call text used on the PRACE website (e.g. [3]) and [iv]) in targeted emails sent out to advertise the call. Once the text is ready, the text is sent to the PMO and finally on to the PRACE Board of Directors for approval to open the call. Once the call text is available on the PRACE website the call can be advertised.

### 2.2 Receiving proposals – the new PPR tool

Up to and including DECI-10, proposals were completed by applicants filling in an MS Word form which was then sent as an attachment to a dedicated email list in time for the advertised deadline. This process was undesirable for many reasons: it was error-prone as there was no easy way of tracking proposals which may have been sent in multiple times by different people, forms could not be validated in any way meaning fields could be left blank or contain the wrong type of information or even deleted, forms could be edited in different word-processing systems and submitted in corrupted form and there was no way to automatically enforce the submission deadline. Overall the system did not have a very professional look and feel.

After a period of consultation and requirements capture it was decided that the partner CINES would provide an on-line tool capable of collecting DECI submissions from applicants who had first signed up to the tool. This work was carried out under PRACE-2IP, WP10. All submissions would be viewable and downloadable by DECI staff from within the tool. The new tool, based on the already existing tool used for applications for Tier-0 access, was implemented and made available for the opening of the DECI-11 call on 8th May 2013. Some example screenshots of the tool in action are shown in Figure 1 - Figure 4 together with an overview of how the tool works.

Applicants first sign up to the tool to get a login based on their email address and a chosen password. This login exists across multiple DECI calls so for applicants who apply to more than one DECI call there is no need for them to fill in basic personal information for every call. DECI staff and reviewers also sign up in this manner. Figure 1 shows the sign-up screen used by applicants as well as DECI staff and reviewers.

Frontpage → Sign in

## Sign in

E-mail address:

Password:

Remember me

[Forgotten password?](#)

Please [click here to register yourself](#) if you do not have an account. You will then be able to submit proposals.

For information about the DECI peer review process and any current calls please follow this (external) link:  
<http://www.prace-ri.eu/DECI-12-Call>

DECI 12th Call  
 Cines\_fr © v1.00  
[Contact us here for queries regarding how to fill in the online form](#)

**Figure 1: PPR tool login screen**

Once signed-up, applicants can create a DECI proposal. The proposal can be done in multiple stages as applicants have the option to save their proposal and come back to it later. When users are finally happy with their submission, they can save and submit it. It is not possible for the applicant to change the proposal after this point, although if good reason is given the proposal can be re-opened by the PPR tool administrators. The submission consists of two items: one is the on-line form which allows for multiple collaborators and multiple codes to be described and the second is the detailed project proposal which is attached as a PDF based on a given MS Word template.

Figure 2 shows a view seen by a user where links to two open DECI proposals can be seen together with a proposal which has been assigned to the staff member for review. This view is somewhat artificial as a reviewer would not usually both have proposals to submit and others to review but it is useful as it gives an idea of what both reviewers and applicants see.

Figure 3 shows the “frontpage” view seen by staff when logged in to the tool. This provides links to “master spreadsheets” for each call which are then shown in Figure 4.

Frontpage

[Sign out](#)

# Welcome Chris Johnson

It is mandatory to add all collaborators to the proposal. Please follow the link below to add all collaborators.

## DECI 11th Closed

- Call closes on : Friday 14th June 2013 at 17:00:00 CEST
- [DECI 12<sup>th</sup> call for proposal](#)

## DECI 12th Closed

- Call closes on : Monday 20th January 2014 at 17:00:00 CET
- [DECI 12<sup>th</sup> call for proposal](#)

Proposal number	Project name	Acronym	Submitted	Actions
<a href="#">11DECI1010</a>			No	<a href="#">Display</a>
<a href="#">12DECI0069</a>	Test		No	<a href="#">Display</a>

## Reviews

The following proposal(s) have been assigned to you for review.

Proposal number	Detailed project document	Project name	Acronym	Technical review(s)	Scientific review status	Actions
<a href="#">11DECI0021</a>	<a href="#">vassilicos_deci.pdf</a>	Fractal Plates and Wings	FRAPLAWI	<a href="#">EPCC</a>	pending	<a href="#">Display application form</a> <a href="#">Display scientific review</a> <a href="#">Edit scientific review</a>
<a href="#">11DECI0021</a>	<a href="#">vassilicos_deci.pdf</a>	Fractal Plates and Wings	FRAPLAWI	<a href="#">EPCC</a>	pending	<a href="#">Display application form</a> <a href="#">Display scientific review</a> <a href="#">Edit scientific review</a>
<a href="#">12DECI0003</a>	<a href="#">PRACE_project-description_QMC-H2.pdf</a>	Quantum Monte Carlo Studies of High-Pressure Solid Molecular Hydrogen	QMC-H2	<a href="#">EPCC</a>	pending	<a href="#">Display application form</a> <a href="#">Display scientific review</a> <a href="#">Edit scientific review</a>

Figure 2: PPR tool current proposals to submit or review



Frontpage

[Sign out](#)

# Peer review staff dashboard

## DECI 11th

- [Master spreadsheet](#)
- [Scientific reviews detailed spreadsheet](#)

## DECI 12th

- [Master spreadsheet](#)
- [Scientific reviews detailed spreadsheet](#)

## Non-call related :

- [Go to your Applicant dashboard](#)
- All people list
- Registered users
- Reviewers database
- Manage call for proposals
- Manage computer systems & computing centers

[DECI 12th Call](#)[Cines\\_fr\\_@ v1.00](#)[Contact us here for queries regarding how to fill in the online form](#)

Figure 3: PPR tool frontpage

## DECI 12th : Master spreadsheet

[Excel](#) [PDF](#) [HTML](#)

- [Filter only submitted proposals](#)
- [Filter only not submitted proposals](#)
- [Display all proposals \(submitted and not submitted\)](#)

#	Proposal number	Detailed project document	Submitted?	Project leader	Email address	Country	Organisation	Project acronym	Project title	Codes	Total core-hours requested (Not normalized)	Research field	Collaborators
1	12DECI0003	<a href="#">PRACE_project_description_QMC-H2.pdf</a>	Yes	Foulkes Matthew	wmc.foulkes@imperial.ac.uk	GB	Imperial College London Physics Department of Physics, Imperial College London, South Kensington Campus SW7 2AZ London UNITED KINGDOM (GB)	QMC-H2	Quantum Monte Carlo Studies of High-Pressure Solid Molecular Hydrogen	#1 – CASINO #2 – Quantum Espresso	10,000,000	Materials Science	Prof. Fou Matthew Dr Azadi Mr Poole Thomas
2	12DECI0006	<a href="#">ECI_12th_Iliav_Iliav_final.pdf</a>	Yes	Iliav Iliav	I.T.iliav@sussex.ac.uk	GB	University of Sussex Physics and Astronomy Astronomy Centre, Department of Physics & Astronomy, Revensey II Building, University of Sussex, Falmer BN1 9QH Brighton UNITED KINGDOM (GB)	LocalUniverse	Our Neighbourhood in the Universe: From the First Stars to the Present Day	#1 – C2-Ray #2 – Ramses-CLUDATON #3 – Ramses (w/AMR)	13,000,000	Astro Sciences	Dr. Iliav I Dr. Dixon Dr. Schme Aurel Mr. Sullivan David Prof. Mell Garett Dr. Ocvirk Pierre Lecturer Aubert Dominiqu Prof. Ahn Kyungjin Prof. Yep Gustavo

Figure 4: Master spreadsheet of all proposals for a call

The submission tool also allows for DECI staff to perform technical evaluations within the tool and for DECI staff to assign scientific reviewers which can then also be completed within the tool. The PPR tool has been used for both DECI-11 and DECI-12 with minor improvements made between the two calls. Further updates are envisaged which would allow, for example, for the accept/reject responses to applicants to be sent out from the tool.

## 2.3 Reviewing proposals and allocating resources

All proposals first receive a technical review by a member of DECI staff at the relevant home site. The home site is the DECI site which deals with the administrative side of each of the DECI projects and is usually one of the sites based in the home country of the PI. In the case of external projects (projects from countries which are not contributing computing time for the call) the home site is chosen based on proximity of the country of the PI to the country where the DECI site is located or may be chosen based on previous links a site has with the PI. The technical review is then followed by scientific review from a panel of experts. For countries which contributed resources to the relevant DECI call, such panels are assembled from within the country where the proposal originated. For countries which do not contribute resources to the relevant DECI call a separate pan-European panel of experts is used. Previously the HPC-Europa SUSP had been used for this task but when the HPC-Europa project ended at the end of 2012 this new panel was formed for the DECI-10 call under PRACE-2IP which was dedicated to DECI reviewing.

Once all reviews are completed the DAAC (DECI Access and Allocation Committee) meets to agree which proposals to fund and to what level. Decisions are made based on scientific excellence (determined by the ranking given by the scientific reviewers) and on the juste retour principle where each country receives approximately the same amount of computing time the country has contributed, minus 15% which is dedicated to external projects. Following on from this meeting successful PIs are informed of how much computing time they have been awarded and given a contact point within the allocated home site. A description is given of what PRACE services are available to the PI and to other members of the project. PIs are also given information regarding their obligations for producing reports, etc. and required to sign an AUP (Acceptable Use Policy). Unsuccessful applicants are also informed of the decision and given feedback from the reviewers to help with any future submissions.

## 2.4 Allocations of machines and setting up projects

Once decisions have been made on what level of resources each project will receive, a specific machine or multiple machines must be assigned to each project. This is done based on requests within the proposal form, comments within the technical evaluation, availability of software, etc. Finally the information on assigned machines is passed to the PI together with information about how to get accounts, etc. At this point PIs are given information about PRACE services such as accounting, helpdesk, etc.

## 2.5 Managing projects

Day-to-day management of DECI projects is done by the home site concerned and overall management is done by e-mail together with monthly video-conferences.

## 2.6 Ending of projects

PIs are required to produce final reports of their project within 3 months of the project ending. They are provided with a template for doing this. All DECI users are required to remove data within the same 3 month period. Extensions are only given in exceptional circumstances and must be negotiated between the home site managing the project and the site(s) where the project is running.

## 3 Interaction with other workpackages

The PRACE-3IP DECI task (2.6) interacts with several other workpackages, notably WP6 and WP7. WP6 runs all the PRACE services: networking, GridFTP for efficiently transferring files between sites, gsissh for secure access to systems, UNICORE (Uniform Interface to Computing Resources) for managing workflows, accounting of computing resources consumed, PCPE (PRACE common production environment), LDAP for managing user accounts, DPMDB (DECI project management database), etc. WP7 deals with all the enabling requirements of DECI projects and the DECI technical evaluations. The workpackages involved work well together as they have a clear role and communication between the workpackages is dealt with via meetings (physical, video conference or teleconference) where necessary and via interaction of the staff involved. Interactions with other workpackages happen when needed. For example, opening and advertising the DECI calls requires interaction with WP3 and work on the PPR tool was performed by WP10 of PRACE-2IP and is continued now under WP6 of PRACE-3IP.

## 4 DECI Calls

In Figure 5 the timeline of DECI calls is shown. The black dotted line shows the point where the management of the DECI-9 and DECI-10 calls changed from PRACE-2IP to PRACE-3IP. The DECI-9 and DECI-10 calls were handled by PRACE-2IP right up until the PRACE-2IP project finished at the end of August 2013. The DECI-11 and DECI-12 calls were managed entirely within PRACE-3IP right from the start and will continue to be managed by PRACE-3IP until the end of the PRACE-3IP project. The DECI-13 call will begin under PRACE-3IP and is shown with a possible 3 month delay (see section 5 for more details).



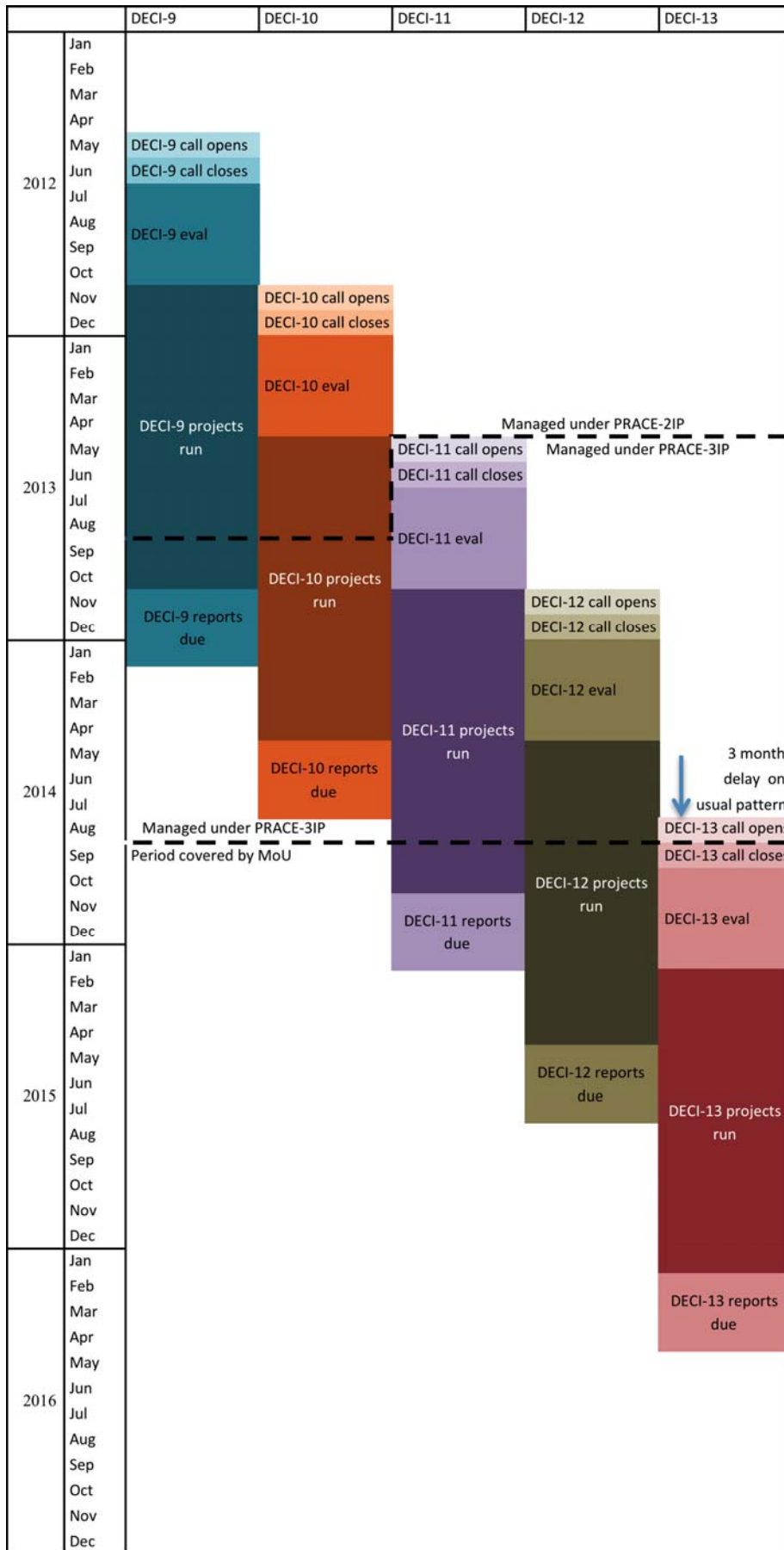


Figure 5: The timeline of recent DECI calls and the relationship with PRACE-2IP/3IP

#### 4.1 DECI-9 and DECI-10

The DECI-9 and DECI-10 calls were initially managed under PRACE-2IP WP2 with 31 and 37 projects respectively already up and running. Projects from the DECI-9 call were due to finish on 31st October 2013, and projects from the DECI-10 call are due to finish on 30th April 2014, both dates being after the DECI activity in PRACE-2IP project had ended, September 2013. Consequently, the management for these calls was transferred to PRACE-3IP at the point where the PRACE-2IP project ended. An overview of the awarded projects for DECI-9 and DECI-10 are shown in Table 1 and Table 2.

Internal/External/ Industry	DECI project	Computational resources awarded (core hours)	DECI home site	DECI execution site(s)
External	COIMBRALATT	5,265,000	BSC	PDC
External	NMRCONF	2,080,000	CSC	CSCS
External	TB-Drugs-In_silico	736,000	FZJ	CINECA
External	SPSC	7,200,000	SURFSARA	FZJ
Industry	FORSQUALL	921,600	CINES	EPCC
Industry	ESM4OED	3,000,000	EPCC	EPCC
Internal	ICREIMUTANTS	1,100,000	BSC	EPCC
Internal	SpEcBNS	2,500,000	BSC	RZG
Internal	DOPE	3,000,000	CINECA	CINECA
Internal	GPCR4D	660,000	CINECA	EPCC
Internal	iMIG	2,500,250	CINECA	BSC
Internal	AuPd-Seg	640,000	CINES	RZG
Internal	IONGATE	1,200,000	CINES	UIO
Internal	NPR-LQCD	748,800	CINES	CINECA
Internal	CompSym	5,600,000	CSC	CSCS
Internal	Planck-LFI2	7,000,000	CSC	CSC
Internal	LCRR	9,900,000	CSCS	CSCS,STFC
Internal	LBSCOM	3,200,000	EPCC	CSC
Internal	MoMoGal	7,002,500	FZJ	EPCC,UIO
Internal	Reactive_Ceria	1,500,000	ICHEC	FZJ
Internal	Si-Interfaces	2,488,320	ICHEC	CINES
Internal	SPH-WEC	1,620,000	ICHEC	CSCS,NCSA
Internal	AIMD-PAF	231,000	NCSA	EPCC
Internal	CoStAFuM	9,687,608	PDC	RZG,UIO
Internal	DifVib	6,250,000	PDC	EPCC,PDC
Internal	HydFoEn	2,500,000	PDC	UHEM
Internal	GanDaLF	1,299,999	RZG	UIO
Internal	PTACRB	4,649,997	RZG	ICHEC
Internal	HiSSor	5,000,000	UHEM	STFC,RZG
Internal	MPI-FETI	2,656,250	VSB-TUO	EPCC
Internal	NPT_MC	2,352,000	VSB-TUO	UHEM
	<b>Total</b>	<b>104,489,324</b>		

Table 1: DECI-9 projects by home site showing execution site and resources awarded

Internal/External/ Industry	DECI project	Computational resources awarded (core hours)	DECI home site	DECI execution site(s)
External	AIDMP	1,200,000	BSC	FZJ
External	fplb	4,216,934	BSC	WCSS
External	Novel_Anticoagulants	480,000	BSC	CINECA
External	SPAITAC	5,625,000	BSC	EPCC
External	NANODROPS	10,141,200	CSC	EPCC
External	TheoMoMuLaM	2,835,000	SURFSARA	UIO
Internal	ERPP	5,910,000	CINECA	CYFRONET
Internal	MOTUS	2,625,000	CINECA	ICM
Internal	CONVDYN13	5,419,008	CSC	RZG
Internal	HIV1-GSL	7,000,000	CSC	EPCC
Internal	HyVaMPI	3,500,000	CSC	UIO
Internal	Dissipative_Phenomena	686,400	EPCC	EPCC
Internal	GalChem	5,940,000	EPCC	SURFSARA
Internal	Galsim	10,692,000	EPCC	CSC
Internal	HIGHERFLY	5,000,000	EPCC	EPCC
Internal	InterDef	3,739,250	EPCC	SURFSARA
Internal	JOSEFINA	6,250,000	EPCC	PDC
Internal	WISER	6,000,000	EPCC	EPCC
Internal	INPHARMA	749,998	FZJ	EPCC
Internal	LargeRB2013	6,817,501	FZJ	EPCC
Internal	MoDSS	577,500	FZJ	RZG
Internal	APOP20X3	1,564,984	ICHEC	PSNC
Internal	RODCS	3,749,997	ICHEC	CSCS
Internal	waveclim	2,295,000	ICHEC	CSCS
Internal	CELESTE	5,500,000	ICM	CSCS
Internal	DNSTF	8,437,500	PDC	EPCC
Internal	LipoSim	8,750,000	PDC	PDC
Internal	MEGAREACT	750,000	PDC	UIO
Internal	PLANETESIM-2	7,500,000	PDC	FZJ
Internal	HYDRAD	6,063,998	RZG	RZG, VSB-TUO
Internal	PTACRB-2	2,949,999	RZG	CYFRONET, ICHec
Internal	DIVI	3,500,000	SURFSARA	ICHEC
Internal	SCosPtS	2,280,000	SURFSARA	CSC
Internal	GREENLIGNITE	2,240,000	UHEM	UHEM
Internal	WIND-FORECAST	140,000	UHEM	CYFRONET

Table 2: DECI-10 projects by home site showing site and resources awarded

## 4.2 DECI-11

The DECI-11 call opened on 8th May 2013 and closed on 14th June 2013 and received a record number of proposals since PRACE began, with 117 proposals received (with 115 eligible). Two proposals received from Iran were deemed ineligible according to the eligibility criteria “Proposals from academia and industry are eligible, as long as the project leader is undertaking non-proprietary research in a European country (European Union, candidates, associated countries and PRACE member countries)”. Table 3 shows the breakdown of proposals received and those accepted by scientific discipline both by number of proposals/projects and by amount of computing time requested/granted. Figure 6 shows the amount of computing time granted by discipline as a pie chart. It can easily be seen that Materials Science is awarded the largest amount of time in common with previous DECI calls. Table 4 shows the breakdown of proposals received by the country of origin of the PI.

<b>Scientific Discipline</b>	<b>Proposals Received</b>	<b>std-hours requested</b>	<b>Proposals Accepted</b>	<b>std-hours granted</b>
Astro Sciences	9	104,038,181	6	40,852,000
Bio Sciences	27	321,422,000	14	55,092,123
Earth Sciences	4	21,678,000	3	12,200,350
Engineering	25	136,164,981	5	22,018,442
Informatics	5	162,099,550	1	5,000,000
Materials Science	41	306,224,933	20	88,614,688
Plasma & Particle Physics	6	82,250,000	3	15,250,000
<b>Total</b>	<b>117</b>	<b>1,133,877,645</b>	<b>52</b>	<b>239,027,603</b>

**Table 3: DECI-11 proposals received and projects accepted by discipline**

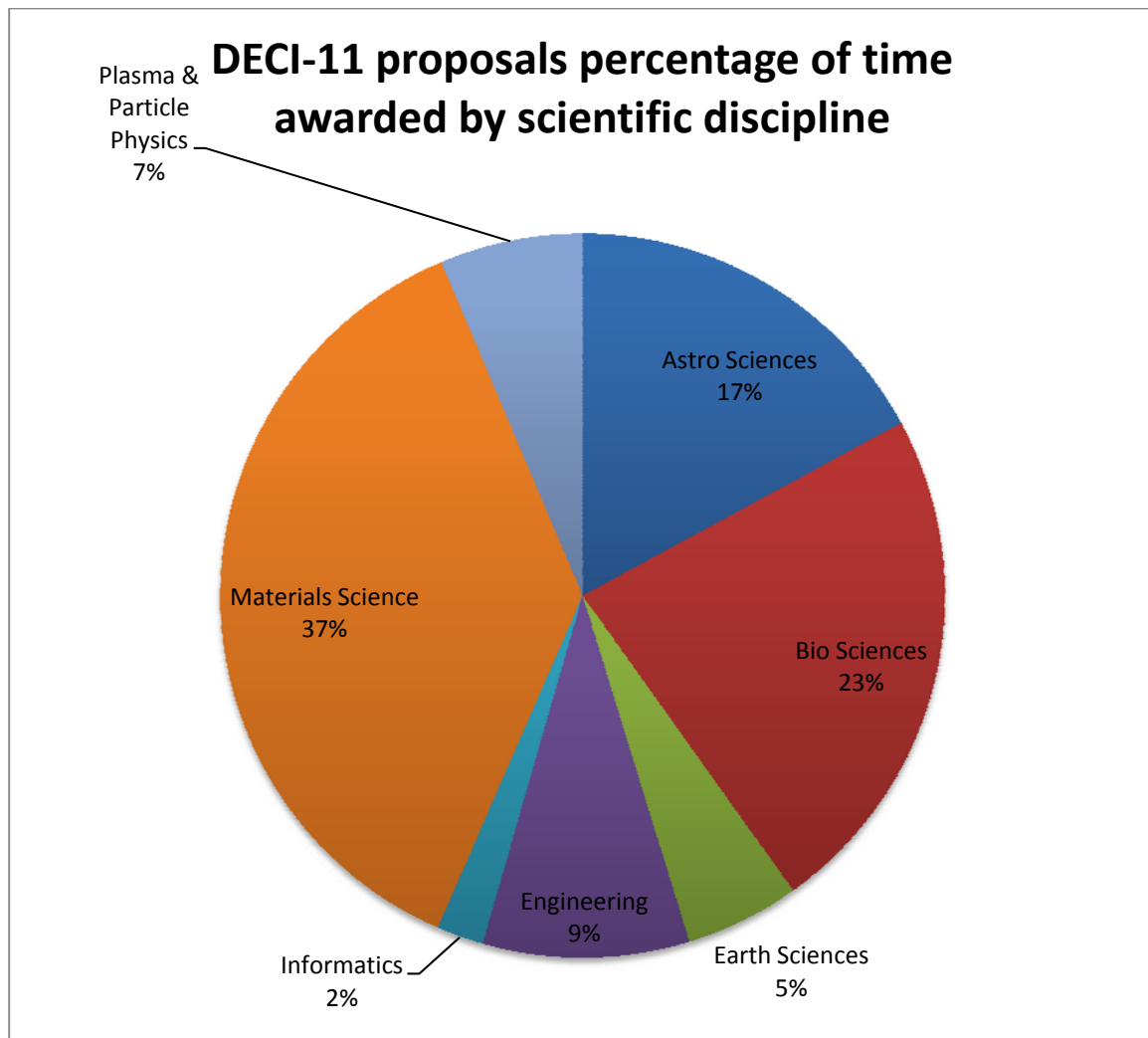


Figure 6: DECI-11 time awarded by scientific discipline

Country of PI	Number of PIs
Austria	4
Belgium	5
Croatia	1
Czech Republic	3
Denmark	4
Finland	3
France	5
Germany	15
Greece	6
Hungary	2
Iran	2
Ireland	3
Israel	3
Italy	7

Country of PI	Number of PIs
Netherlands	2
Norway	2
Poland	5
Portugal	1
Serbia	1
Spain	10
Sweden	2
Switzerland	3
Turkey	4
UK	24
<b>Total</b>	<b>117</b>

Table 4: DECI-11 country of origin of PI for proposals received

Finally Table 5 lists all the DECI-11 projects with their associated DECI execution site (where the project actually runs).

Internal/External/Industry	DECI project	Computational resources awarded (core hours)	DECI home site	DECI execution site(s)
External	EERSC	7,560,000	CSC	RZG
External	CompClay	6,300,000	IDRIS	VSU-TUO
External	HTMTCC	8,200,000	IDRIS	PSNC, UIO
External	Meso-NH-4-DRIHM	3,500,000	IDRIS	CYFRONET
External	SPOC-MULOR	1,750,000	IDRIS	PSNC
External	UnMAD	7,500,000	IDRIS	EPCC
External	FSTRAP	425,000	SURFSARA	EPCC
External	OXYN-LED	5,200,000	SURFSARA	CYFRONET
Internal	ceriahydro	100,000	BSC	FZJ
Internal	ConfTransHSP90	1,500,000	BSC	BSC
Internal	WHALE	500,000	BSC	RZG
Internal	ATPSYNS	1,000,000	CINECA	EPCC
Internal	HyDiG	2,000,000	CINECA	NIIF
Internal	SCENE	2,400,349	CINECA	EPCC
Internal	DyNet	1,375,000	CSC	PSNC
Internal	gklocsoc	4,000,000	CSC	PDC
Internal	Planck-LFI3	4,000,000	CSC	CSC
Internal	Syndecan	5,000,000	CSC	EPCC
Internal	CIChannels	3,350,000	CSCS	PDC
Internal	CROWDING	8,750,000	CSCS	CSC
Internal	ASTROGKS	6,250,000	EPCC	ICHEC
Internal	BRAFKIN	2,000,000	EPCC	CSC
Internal	CBCAGE	8,000,000	EPCC	EPCC

Internal/External/Industry	DECI project	Computational resources awarded (core hours)	DECI home site	DECI execution site(s)
Internal	ECG-MD	4,207,500	EPCC	EPCC
Internal	EMMA	9,744,000	EPCC	EPCC
Internal	FRAPLAWI	2,519,041	EPCC	PDC
Internal	GGOA	6,187,500	EPCC	EPCC
Internal	TLRSimSys	10,000,000	EPCC	CSCS
Internal	UltraFOx	9,062,500	EPCC	EPCC
Internal	FFF2	1,500,000	FZJ	CINECA
Internal	GraFI	3,600,000	FZJ	PDC
Internal	ELECNANO	4,492,800	ICHEC	CINECA
Internal	IIPDRS	3,264,731	ICHEC	PDC
Internal	Photocatalyst	2,799,360	ICHEC	WCSS
Internal	GPCR-SWITCH	4,000,000	ICM	IPB
Internal	CMBE	189,000	IPB	ICHEC
Internal	ProPep	1,500,000	NIIF	CSCS, NIIF
Internal	FLOCS	12,500,000	PDC	EPCC
Internal	GSTP	5,000,000	PDC	FZJ
Internal	abinitio-nanocarbon	750,000	PSNC	FZJ
Internal	MAPLER	1,200,000	PSNC	CASTORC
Internal	GraSiC-1	14,700,000	RZG	RZG, VSB-TUO
Internal	NaUSIKAS	2,196,000	RZG	SURFSARA
Internal	LESPVC	3,500,000	SURFSARA	SURFSARA
Internal	TECHAR	2,014,200	SURFSARA	ICM
Internal	thermospin	3,900,000	SURFSARA	EPCC
Internal	N-MILiB	3,500,000	UIO	UIO
Internal	WeSearch	5,000,000	UIO	UIO
Internal	ELTUNBIO	8,671,622	VSB-TUO	PSNC
Internal	PROS-HIFU	1,569,000	VSB-TUO	WCSS
Internal	Mechanic-Kepler	8,400,000	WCSS	CYFRONET
Internal	PIERNIK-SI	12,400,000	WCSS	ICHEC, SURFSARA
	<b>Total</b>	<b>239,027,603</b>		

Table 5: DECI-11 projects by home site showing execution site and resources awarded

### 4.3 DECI-12

The DECI-12 call opened on 18th December 2013 and closed on 20th January 2014 and at the time of writing all proposals are receiving scientific reviews due to be completed by 21st March 2014 in time for the DAAC meeting in early April. For DECI-12 61 proposals were received, approximately half the number received for DECI-11. The reduction in number of proposals received was deliberate as the call was open for a shorter period than for DECI-11 and advertised less widely. The reason for this was that the PRACE-3IP project ends in June 2014 and no additional resources are available until the Horizon 2020 projects start in 2015.

Table 6 shows proposals received for DECI-12 by scientific discipline and Table 7 shows the DECI-12 proposals received by country of origin of PI. Other statistics such as the number of CPU hours requested is still in the process of being collated.

Scientific Discipline	Proposals Received
Applied Mathematics	3
Astro Sciences	7
Bio Sciences	10
Earth Sciences	2
Engineering	13
Informatics	1
Materials Science	23
Plasma & Particle Physics	2
<b>Total</b>	<b>61</b>

Table 6: DECI-12 proposals received by scientific discipline

Country of PI	Number of PIs
Belgium	2
Germany	1
Denmark	2
Estonia	1
Spain	2
Finland	4
UK	16
Greece	5
Italy	16
Netherlands	4
Portugal	1
Sweden	5
Turkey	2
<b>Total</b>	<b>61</b>

Table 7: DECI-12 Country of origin of PI for proposals received



## 5 Future DECI calls

After the end of PRACE-3IP, DECI will continue to run and this is likely to cover a period where little or no funding is available. To deal with this a non-legally binding MoU (Memorandum of Understanding) has been signed by DECI partners who wish to be involved and which does not commit partners to taking part in DECI calls, but commits partners who do wish to take part to commit enough resources to run the call.

The next DECI call to open is DECI-13 and the dates for opening this call are in the process of being decided. Following the usual 6-monthly cycle the call should open in May/June, 2014 for projects starting on 1st November 2014. However, given that it is likely there will be a gap in funding due to the ending of the PRACE-3IP project which will result in a lower availability of effort, one possibility is to delay the opening of the call by up to 3 months. This possibility is still under debate.

On 13th February 2014 a DECI planning meeting took place to decide which DECI services were required and plans were made for a better distribution of management and administration tasks. In early March members of T6.2 participated in a face-to-face meeting of WP6 of PRACE-3IP, where the support by WP6 of the DECI projects for the period after June 2014 also was discussed.

## 6 DECI Mini-symposia

During the period in question DECI was represented at two Mini-symposia where a DECI overview was given which was followed by 30-minute talks from representatives from DECI-8, DECI-9 and DECI-10. The first took place at the International Conference on Parallel Computing - ParCo2013, Munich, Germany 10th -13th September 2013 where the following talks were presented:

- Chris Johnson (EPCC, University of Edinburgh, UK) PRACE DECI (Distributed European Computing Initiative) DECI Overview
- Anastasia Bochenkova (Aarhus University, Denmark) Talk on DECI-8 project *Photoreception* “Quantum photophysics and photochemistry of biosystems”
- Peter Bond (University of Cambridge, UK) Talk on DECI-8 project *TLRSim* “The secret life of lipids: a computational approach to molecular recognition and signalling beyond the membrane”
- William A. Romero R (INSA Lyon, CREATIS, Lyon, France) Talk on DECI-8 Project *VIPforVPH* “A Virtual Imaging Platform for the Virtual Physiological Human”
- Hannu Kurki-Suonio (University of Helsinki, Finland) Talk on DECI-7 project *Planck-LFI2* “Simulations in ESA Planck Cosmology Mission Data Analysis”

The second took place during the joint PRACE/LinkSCEEM (Linking Scientific Computing in Europe and the Eastern Mediterranean) Conference on Scientific Computing (CSC), Paphos, Cyprus, 3rd – 6th December 2013 where the following talks were presented:

- Chris Johnson (EPCC, University of Edinburgh, UK): PRACE DECI (Distributed European Computing Initiative) DECI Overview
- Manthos Papadopoulos (National Hellenic Research Foundation, Institute of Organic and Pharmaceutical Chemistry, Athens, Greece) Talk on DECI 7 project *MOLED* “Design of novel photonic materials”

- Hugo Filipe (University of Coimbra, Portugal) Talk on DECI-10 project *fplb* “Interaction of a homologous series of fluorescent probes with different lipid bilayers”

## 7 Conclusions

In conclusion, the DECI call management process is in good shape and has now run across many different projects (DEISA, PRACE-1IP, PRACE-2IP, and PRACE-3IP) and clearly has continued to be of interest for users as seen by the number of submitted proposals. It is in good shape to continue within a new PRACE framework and can cope with a short interim period with little or no funding, provided this period is not more than a few months. Many successful DECI projects have run in the period reported here and T2.6 continues to interact well with the other DECI-related workpackages. The 6-monthly cycle works well and is popular with PIs, particularly as it enables PIs to resubmit proposals within a short timeframe after an unsuccessful application. However, moving temporarily to a 9-monthly or even 12-monthly cycle is unlikely to be detrimental to DECI.