HPC-Europa3

Funding for collaborative research visits to use HPC

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HPC-Europa3 webinar overview

- What is HPC-Europa3?
- Who can apply?
- Where can I visit?
- Why should I apply?
- How do I apply?
- Where can I find more information?

What is HPC-Europa3?

EC funding for short collaborative research visits using HPC

- **Access to HPC systems**
  - Including some of the most powerful in Europe
  - On average 88k core-h per visit
- **Technical support and consultancy**
  - To help you make best use of the HPC facilities
- **Supportive collaborative environment**
  - Working with a host researcher in your own field in academia or industry/commerce
- **Travel and living expenses**
  - One “reasonable” return fare
  - Accommodation & living expenses: around 52€ (£47) per day

Visits of 2-13 weeks

- Duration of longer visits should be well justified
- You can apply for more than one visit, to maximum total of 13 weeks

Potential use cases

Example 1

- *I parallelised an algorithm. The HPC facility I have access features 16 cores. I would like to study the scalability beyond 16 cores.*

Example 2

- *I used a parallel software package. The HPC facility I have access features 32 GBs of RAM. I would like to study larger testcases, so I would need a cluster with more RAM.*

Example 3

- *I collaborate with a researcher who lives in Lithuania. If the researcher could visit my research group, we would boost our progress and get results that can be published in a journal.*

Who can apply?

Anyone who can use HPC for their research

- Academic or industrial / commercial researchers
- Any research area
  - As long as it can make use of HPC facilities
- Any level of research experience
  - Early postgraduate to full professor
- HPC experience not necessarily a pre-requisite
  - Aiming to support HPC uptake among researchers!
- Researchers currently working in EU or Associated States
  - www.bit.ly/AssociatedStates
- Also limited places for researchers outside the above countries.

Where can visits take place?

Visit any research group in any of the 8 participating countries

- NB You may not visit a host institute in the country where you currently work

Eight HPC centres in:

- Finland (CSC)
- Germany (HLRS)
- Greece (GRNET)
- Ireland (ICHEC)
- Italy (Cineca)
- Netherlands (SURFsara)
- Spain (BSC)
- UK (EPCC)

How do I find a research host?

Identify a host researcher with matching interests

- List of current hosts: https://hpc-europa.cineca.it/hostlist
- New hosts can be added at any time
- Can be **anywhere** in the country visited
  - Recent EPCC visitors in Edinburgh, St Andrews, London, Cambridge.
- SMEs can be visitors or hosts
  - Visits can be SME➔academia; academia➔SME; SME➔SME

HPC centre in host country provides HPC resources and technical support

- e.g. visitors to the UK use EPCC facilities (ARCHER2 or Cirrus), while visitors to Spain use BSC facilities (MareNostrum).

Hosts from commercial organisations

Neurasmus BV (Netherlands)
- Visited Microprocessors & Digital Systems Lab, National Technical University of Athens
- Hosted 3 researchers from that lab

Cloudpharm (Greece)
- Visited Lab of Comp Medicine, Universitat Autònoma de Barcelona
- Hosted visit from PharmacoInformatics, Universitat Pompeu Fabra

Airinnova (Sweden)
- Hosted 2 visitors

Publication of research results

In principle, research results should be published in open literature

- May be a problem for some SMEs – please discuss with us!
- Summary of work done and results **must** be sent to EC
  - EC wants to know what it is funding!
- Also published in public domain (can opt out if necessary)
  - Project website / project directory
- Fairly brief reports:
  - Short summary of objectives & achievements to be sent to EC: https://hpc-europa.cineca.it/visitors
  - 1-page “mini paper” report: https://b2share.eudat.eu/records/7d1fc95770b84fa18d25b1b54ee7a811

HPC-Europa3: the story so far

Project successes:

- Successful collaborations:
  - 101 publications (~379 visits/36 months) + more in preparation
- Continued collaborations:
  - Successful re-applications (same visitor or others in group) / other funding
  - Subsequent research posts/jobs in host institute or via links made during visit

Participation:

- 668 approved visitors
- Over 1,000 registered hosts

Why should I apply?

Benefits include:

- Get better research results quicker
- Supportive environment for those starting out in HPC
- Technology transfer – take new skills back to your organisation
- Extend your professional network
- Time away from other commitments to focus on specific research project
- Experience living and working in another country

How do I apply?

Apply online: http://www.hpc-europa.org

- 4 closing dates per year – apply at any time
- Funded until 2021
- Next closing date: **12th November 2020**
- Tentative:
  - 18th February 2021
  - 13th May 2021

We are here to help!

- Contact staff@hpc-europa.org with any doubts
- But **please read the guidelines and FAQ first!** http://www.hpc-europa.org/guidelines

Where can I find more information?

General information:

- Webpage: http://www.hpc-europa.org
- Twitter: https://twitter.com/@HPCEuropa3

Visit results:

- Visitor project abstracts: https://hpc-europa.cineca.it/visitors
- Visitor blog articles: https://www.epcc.ed.ac.uk/blog/tags/hpc-europa

HPC-Europa3 visitors to EPCC to date:

https://www.wiki.ed.ac.uk/display/HPCE/Visitors+to+EPCC+under+HPC-Europa3

Some quotes from participants

Visitors:

- "A very enriching experience in many ways"
- "An excellent opportunity to gain access to HPC experts, leading research centres and hardware resources which are not available elsewhere"
- **"It has been the best professional and personal experience of my life"**

Hosts:

- "All worked very efficiently. We could concentrate on the core science"
- "Excellent way to have international collaborations with excellent scientists"

My personal case

PhD student at the University of Almeria (Spain)

We developed a threaded algorithm to solve a Global Optimisation problem in a deterministic way.

The algorithm scaled well in our in-house HPC facility.

What about a larger HPC facility?

My personal case

I visited EPCC in Oct-Nov 2012.

- A hybrid MPI-Pthread version was developed.
- I had access to HECToR and I could profile and improve the performance using Cray profilers.
- We managed to scale the code up to eight nodes (128 cores).
- Results were published at IPDPS 2013 (Boston, US).

That opportunity allowed me to know EPCC. I joined it after I finished my PhD in 2015.

2nd TA visitors meeting (TAM)

Second User Group Meeting
Free online event
22 - 23 Oct 2020

Agenda and registration form:

- http://www.hpc-europa.eu/2ndTAM

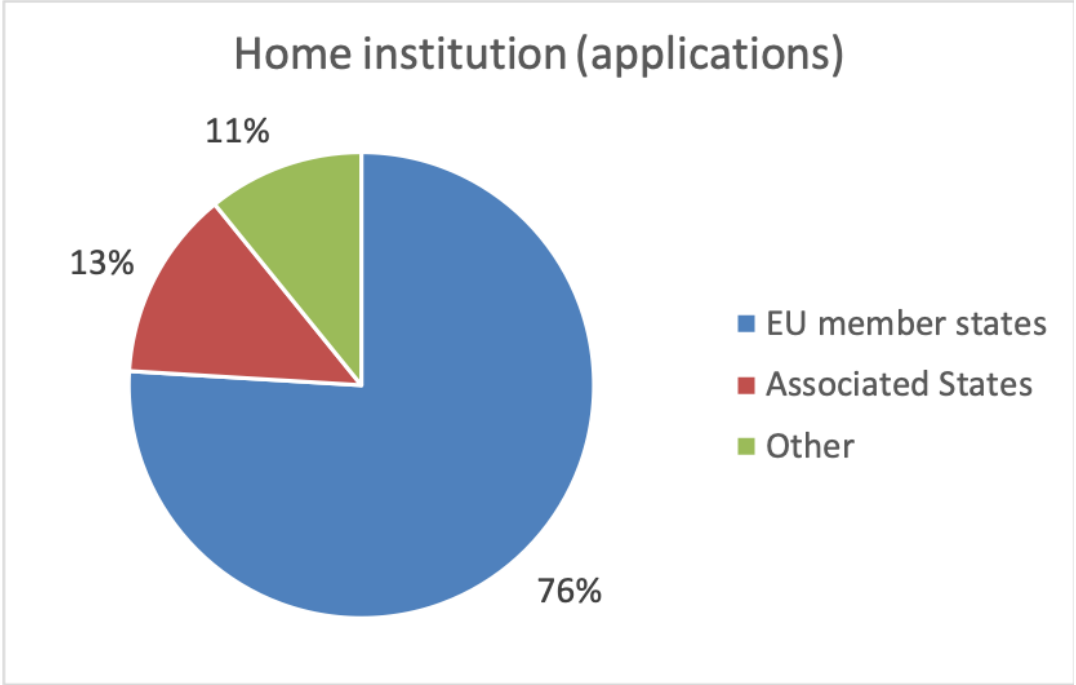
Statistics

General statistics (months 1-36)

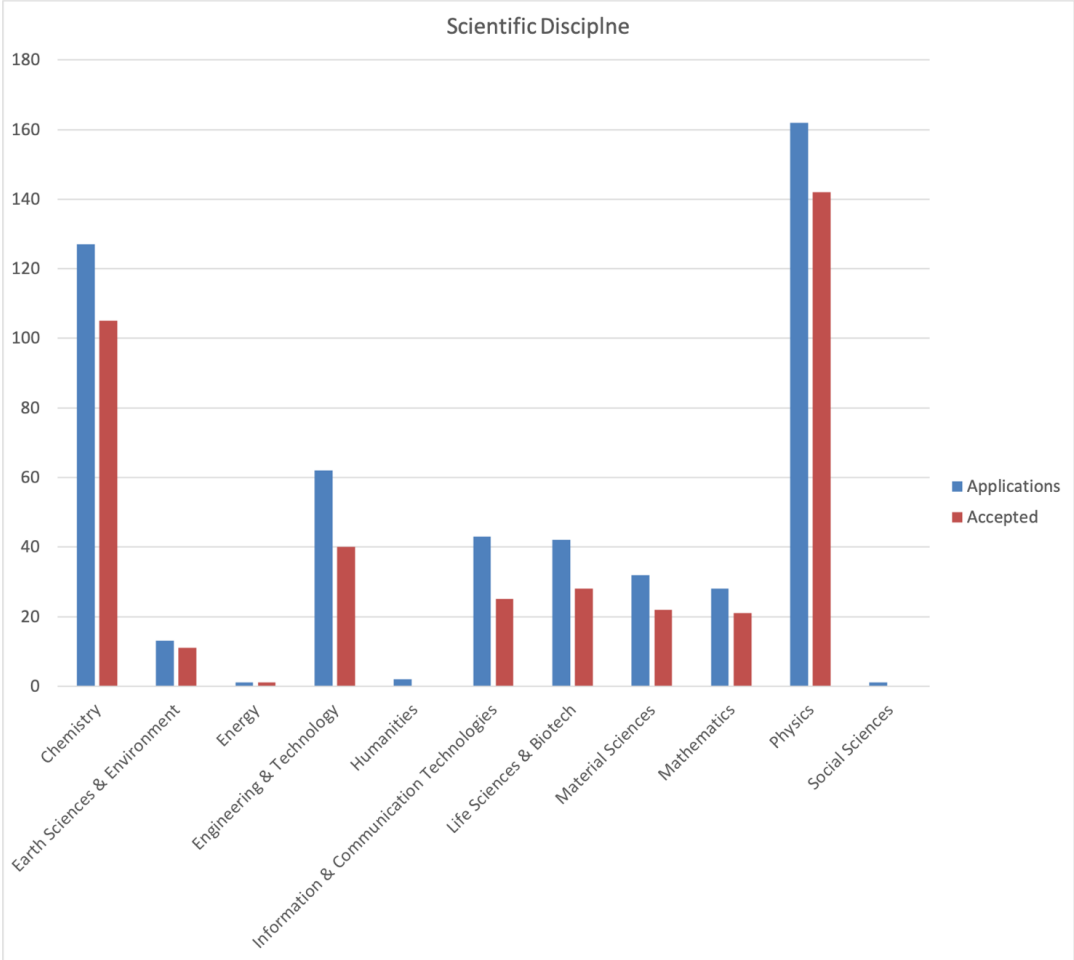
- 12 closing dates for applications
- 841 applications
- 668 (79%) accepted

The next slides contain some statistics for months 19-36 (November 2018 – April 2020)

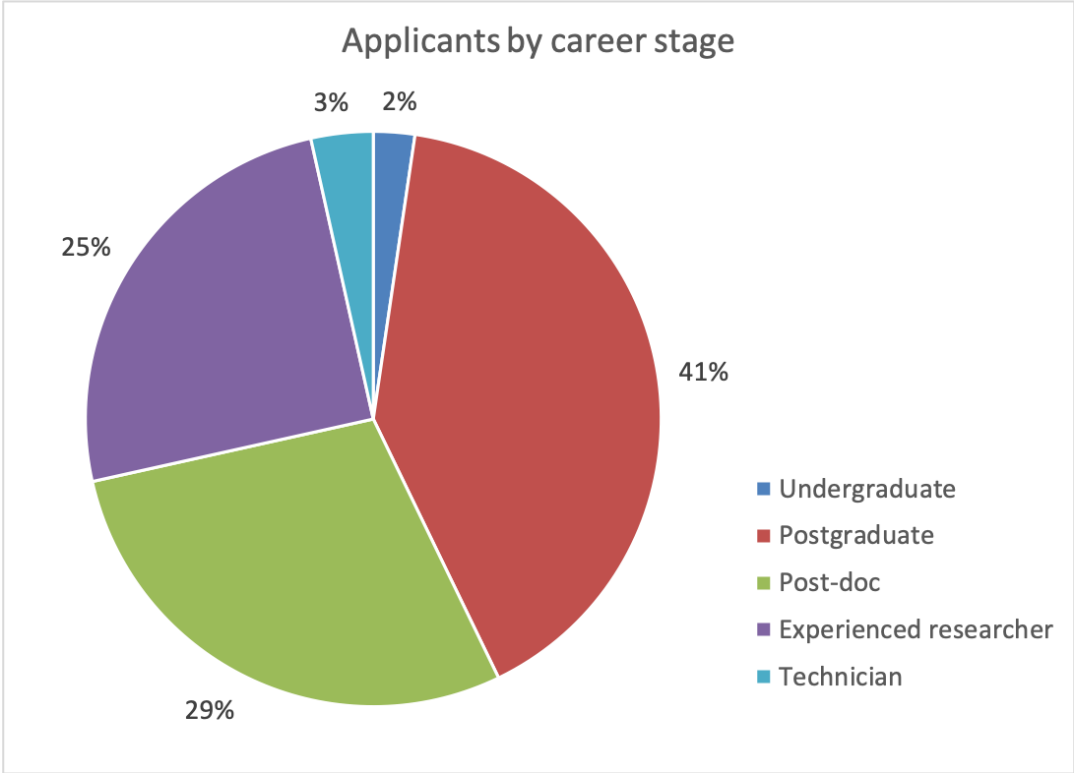
Transnational Access: Applications by country of institute



Transnational Access: Applications by scientific discipline



Transnational Access: Applicants by research career stage



Any questions?