



PROGRAM

DAY 1 (May 9th)

Start time	Activity	Speaker/s	Chair
8.30h Registration			
9.00h	Welcome and opening	Josep M^a Martorell , BSC Associate Director	Maria Ribera Sancho
9.20h	Keynote talk: The quest for the quantum computer Abstract: In this talk, I will explain the brief history of quantum technologies, with particular emphasis on near-term quantum computation, where we are, and the challenges and applications of this technological revolution.	Alba Cervera-Lierta , Senior Researcher at the Barcelona Supercomputing Center and Quantum Spain project coordinator	
10.30h Event Photo			
10.40h Coffee break & First Poster Session			
	Spatially-resolved multiscale models shed light into personalized drug treatments, Alejandro Madrid Valiente (LS)		
	Characterizing the Impact of Graph-Processing Workloads on Modern CPU's Cache Hierarchy, Alexandre Valentin Jamet (CS)		
	Representational Learning for the Study of Breast Cancer Progression through Pseudo-Time, Guillermo Prol Castelo (LS)		
11.40h	First Talk Session: Genomics		
11.40h	Horizontal Gene Transfer in Asgard Archaea, Saioa Manzano-Morales (LS)		
12.00h	Exhaustive Variant Interaction Analysis using Multifactor Dimensionality Reduction, Gonzalo Gómez (CS)		
12.20h	Antibody-Derived Tag normalization for ASAP and scCUT&TAG-PRO, Xavier Soler-Sanchis (LS)		Toni Gabaldón
12.40h	Microbiome profiling from Fecal Immunochemical Test reveals microbial signatures with potential for Colorectal Cancer screening, Olfat Khannous-Lleiffe (LS)		
13.00h Lunch Break			

14.00h Tutorial

“Cross-Departmental Collaboration at BSC: Success Stories and a Workshop”

Alba Jené (Bioinformatics Unit Coordinator, LS), **Carlos García and Guillermo Marin** (Data Pre&Post Processing Researchers, CASE) and **Daniele Lezzi** (Workflows and Distributed Computing Established Researcher, CS)

The objective of this tutorial is to learn about the potential of cross-departmental collaborations and discover who you could collaborate with.

14:00h - 15:00h Speakers will present several cross-departmental collaborations at BSC and share tips and advice on how to network and collaborate.

15:30h - 17:30h Hands-on workshop: Discover who you could collaborate with.

Following a speed-dating structure, participants will have 6' to share one-on-one informal discussions with peer colleagues to ask questions and explore specific areas of their research and practices (several rounds of discussions). The aim is to find a person to collaborate with or to explore what others do to engage in a potential future collaboration.

17.30h Adjourn**DAY 2 (May 10th)**

Start time	Activity	Speaker/s	Chair
9.00h	Opening of the second day		
9.10h	Second Talk Session: Simulations and Modelling		
9.10h	Consensus Essential Dynamics Analysis: Application to Biomolecular Simulations,	Luis Jordà (LS)	Sara Royuela
9.30h	Understanding North Atlantic deep-water formation drivers in an eddy-resolving climate model,	Eneko Martin-Martinez (ES)	
9.50h	Towards data driven reduced order models for the automotive industry,	Benet Eiximeno Franch (CASE)	
10.10h	Climate Services Ecosystems: What Are They and Why Are They Are Important?,	Carmen Gonzalez Romero (ES)	
10.30h	Fault-tolerant applications through OpenMP,	Adrián Munera (CS)	
10.50h	Coffee break & Second Poster Session		
	Open-Source GEMM Hardware Kernels Generator: Toward Numerically-Tailored Computations,	Louis Ledoux (CS)	
	Prediction of Bacterial Interactomes Based on Genome-Wide Coevolutionary Networks: an Updated Implementation of the ContextMirror Approach,	Miguel Fernández (LS)	
	Parallelizing Recurrent Neural Networks and variants using OmpSs,	Robin Sharma (CS)	
	Scaling RTL Simulations with Metro-MPI,	Guillem López Paradís (CS)	
	Sorting Impact in Decision Support Benchmarks TPC-H and TPC-DS for Row-Oriented Relational Databases,	Iván Vargas Valdivieso (CS)	

11.40h Third Talk Session: Medical and Health Applications

- 11.40h Recapitulating experimental drug synergies in AGS through multiscale agent-based simulations, **Othmane Hayoun-Mya** (LS)
- 12h What is the Added Value of Climate Information for Predicting Infectious Disease Outbreaks, **Chloe Fletcher** (ES) **Valentina del Olmo**
- 12.20 Machine Learning approaches for the characterization of COPD, **Iria Pose Lagoa** (LS)
- 12.40 Ranking Allosteric Activators of AMPK by Absolute Binding Free Energy Calculations with FunmetaD, **Rhys Evans** (LS)

13.00h Lunch Break

14:00h Fourth Talk Session: Tools Development

- 14:00h NTRU Cryptosystem: A solution to the quantum threat, **Miquel Guiot Cusidó** (CS)
- 14:20h JLOH: Inferring Loss of Heterozygosity Blocks from Short-Read Sequencing Data, **Matteo Schiavinato** (LS)
- 14:40h VAQUERO: A Scratchpad-based Vector Accelerator for Query Processing, **Julián Pavón Rivera** (CS) **Petar Radojkovic**
- 15:00h TIGER: The gene expression regulatory variation landscape of human pancreatic islets, **Lorena Alonso** (LS)
- 15:20h A Stochastic Method for Solving Time-Fractional Differential Equations, **Nicolas L. Guidotti** (CS)

15.40h Coffee break & Third Poster Session

- Variability of univariate and compound hot and dry events, **Alvise Aranyossy** (ES)
- A Stroke Risk Assessment Tool for Edge-to-Cloud Platforms, **Fatemeh Baghdadi** (LS)
- Multi-model Forecast Quality Assessment of CMIP6 Decadal Predictions, **Carlos Delgado-Torres** (ES - Earth System Services)
- Numerical analysis of MHD flow of magnetically confined plasma in cylindrical geometry using OpenFOAM, **Robert Benassai** (CASE)
- In Silico Bioprospecting of Enzymatic PEF Synthesis and Degradation, **Rubén Muñoz Tafalla** (LS)

16.40h Fifth Talk Session: Artificial intelligence and its Applications

- 16:40h Multi-dimensional Fourier series with quantum circuits, **Berta Casas Font** (CASE)
- 17:00h Tailored Molecular Modelling and Machine Learning solutions for small-molecule drug discovery, **Isaac Filella Merce** (LS) **Artur García**
- 17:20h New Tensor Network Structures in 1.5D, **Sergi Masot Llima** (CASE)
- 17:40h DNN Acceleration in the limits of Energy Efficiency, **Jordi Fornt** (CS)

18.00h Final remarks and End of Doctoral Symposium

18:20h Cool off