5th BSC Severo Ochoa Doctoral Symposium 2018

Objectives

The aim of the BSC Severo Ochoa Doctoral Symposium is to provide a forum in which PhD students and PostDoc researchers can present the results of their research work. To reach these goals, the attending PhD students and PostDoc researchers will share their experience and findings through talks, poster sessions and discussions.
The tutorials on the symposium focus on career development with lectures on research and functioning skills: presentation, academic writing, IPR issues etc.

Authors are invited to submit manuscripts regarding original research and recent developments as well as position and strategic papers in the remit of the Symposium.

All accepted abstracts will be given presentation or poster slot.

The submitted abstracts must be camera-ready and formatted according to the doctoral symposium "how to submit" regulations and not exceeding the max length. Submission implies the willingness of the main author to register and present the talk/poster.

IMPORTANT DATES

Abstract submission deadline: March 20th, 2018
Notification of acceptance: March 29th, 2018
To submit presentations: April, 18th, 2018 by email to: education@bsc.es
To submit posters: April, 23rd 2018 at 12h Hand out your poster at the Education&Training Office (212 2nd floor, Nexus II) by 12pm the latest. Ask for MªJosé or Carolina
Attendee registration deadline (only for non-presenters): April 20th, 2018

How to Submit

1. For the Extended Abstract, please use the BSC-IDS format (2 or less pages, approx. 800 words) including references, diagrams and illustrations). The abstract should have as a main author a PhD candidate or Post Doc researcher and no more than 3 authors, including the applicant's main supervisor. Link to Extended abstract template in MS Word and LaTex is in the submit link. Please **create a PDF file** and upload it.
2. Include your short bio with recent photo at the end of the Extended Abstract as per the template.
3. Please take the time to spell check carefully your paper and bio.

4. Please follow exactly the IEEE templates provided and do not omit or add additional type of affiliation information and do not change the outline or formatting.
    ○ For BSC affiliated applicants, please use the document "Guidelines for expressing BSC Affiliation in Publications"
5. Fill in the registration form. Please indicate if you would like to present a talk or a poster.

Requirements for the Extended Research Abstract

Your Abstract should contain:

- Title
- Your name, affiliation and e-mail address
- Your supervisor's name, affiliation and e-mail address
- If there are any publications related to the work described in the abstract, or in process of publishing, please list them in the acknowledgments section.
- The content of your abstract should relate to your research work and include at least one of the following :
    ○ Description of the research problem you are investigating with justification of its importance and expected contributions of your thesis
    ○ Results so far and their analysis and/or plans for future development
    ○ Outline of prior unsuccessful work with proposed approaches for solution
    ○ Short bio as formated in the IEEE template

Evaluation Criteria

The applications will be evaluated and the accepted ones will be given presentation or poster slot. The reviewers will be looking at the quality of the research work and its relevance to the scope of the event and the quality of the Extended Abstract.

When the Selection Committee is allocating presentation or poster slot, the stage of the research will be taken into account.

Key Note Speaker

Jose Ignacio Latorre Sentis

Quantum Disruption

Quantum Technologies are coming of age. The EU has recently aproved a FET-Flagship on Quantum Technologies, an instrument that will invest 1000 M Euros structured around four pillars: quantum computation, quantum communication, quantum simulation and quantum sensors. In this talk, we shall concentrate in recent progress achieved in quantum computation. The basic idea emerges from the fact that quantum mechanics allows for the manipulation of information in superposition states, called qubits. Furthermore, these superpositions evolved simultaneously following logical gates, providing a genuine parallel computation paradigm. A relevant example of the future use of a quantum computer is illustrated by Shor's algorithm, a quantum circuit that will factor large numbers in polynomial time, and will consequently

break all present cryptography. Quantum logic, though, does not correlate in a simple way to classical algorithms. Non-trivial efforts must be devoted to further understand which problems can be addressed efficiently with quantum computation. Finally, it is arguable that quantum computation brings not only a possible dramatic speed up in some computations, but also provides relevant savings in energy. Research teams around the world compete fiercely to get a first demonstration of quantum supremacy over classical computation. Welcome to the quantum race.

José Ignacio Latorre is a Full Professor at the Universitat de Barcelona and is the leader of the Quantic group at Barcelona Supercomputing Center. He got his Ph. D. in Elementary Particle Physics at the Universitat def Barcelona on Elementary Particle Physics, was a Fulbright Fellow at MIT, a postdoc at the Niels Bohr Institute in Denmark, and a Long-term visiting professor at Center for Quantum Technologies in Singapore. He is the founder and director of the Centro de Ciencias de Benasque Pedro Pascual. He has worked as consultant for companies on artificial intelligence. He is a founder of Entanglement Partners. He wrote two popular books: "La Nada" and "Cuántica". He produces wine!

Barcelona Supercomputing Center - Centro Nacional de Supercomputación