NANOSCALE COHERENT HYBRID DEVICES FOR SUPERCONDUCTING QUANTUM TECHNOLOGIES

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Funded by the European Union

UAM
Universidad Autónoma de Madrid

Quantum materials and devices at the nanoscale

Towards manipulation of coherent quantum states

Madrid (Spain) 7 – 9 March 2022

About the picture above

The statue of King Philip IV is a masterpiece of balance, a difficult composition made by Pietro Tacca, who based his work on a design by Velázquez. Galileo Galilei acted as a scientific advisor, providing the calculations to achieve this difficult position. Credit: wikipedia.

Aims and Scope

The control over electronic properties at nanoscopic length scales unveils new features in superconductors. These will be key to develop superconducting devices with improved functionalities for computation or for current carrying applications. The workshop aims to gather experts addressing the problem of nanoscale superconductivity from different perspectives. We will discuss the most pressing problems in basic superconductivity, with a focus on phenomena that occur at the nanoscale, either at tunneling barriers, interfaces, pinning centers, inhomogeneities, reduced dimensionality nanowires or two-dimensional layers and address recent advances in superconducting devices close to applications.

Topics include:

- Iron based and cuprate superconductivity
- Superconductivity in two dimensional materials
- Current carrying applications
- Josephson junction devices
- High frequency detectors and resonators
- Proximity induced superconductivity in semiconducting nanowires and related devices
- SQUID technology
- Hybrid superconducting devices
- Interface superconductivity
- Devices for quantum computation
- Electronic correlations and high critical temperature superconductivity

	Monday 7 March	Tuesday 8 March	Wednesday 9 March
8:45	**Opening**		
	Session 1: Topological SC	**Session 5: Josephson junctions and SQUID**	**Session 8: Vortex Matter**
9:00	Roditchev	Massarotti	Geshkenbein
9:25	Ast	Poggio	Gaggioli
9:50	Bauch	Koelle	Dobrovolskiy
10:15	Cayao	Giazotto	Menghini
10:40	Rogero	Nulens	Aragón
11:05	**Coffee Break**	**Coffee Break**	**Coffee Break**
	Session 2: Hybrid SC devices	**Session 6: Pnictide SC**	**Session 9: Low dimensional SC**
11:30	Zalom	Böhmer	Buzdin
11:55	Novotný	Leridon	Kalaboukhov
12:20	Hasanien	Chakraborty	Willa
12:45	Steffensen	Crisan	Fomin
13:10	Ye	Szabó	Ridderbos
13:35	**Lunch**	**Lunch**	**Lunch**
	Session3: Coexisting phases in layer materials	**Session 7: Other unconventional SC**	**Session 10: Josephson junctions and resonators**
15:00	Anahory	Lang	Lado
15:25	Baldoví	Mishonov	Martínez-Pérez
15:50	Mañas	Farrar	Gómez
16:15	Calderón	Babaev	**Closure**
16:40	Giraldo-Gallo	**Coffee Break**	
17:05	**Coffee Break**	**Free time Guided Walk Madrid (18:00-20:00)**	
17:40	**Poster Session 1**		
	19:00 Cocktail Dinner	**20:00 Conference Dinner**	