



**NEREID Workshop on Alternative  
Computing Paradigms**  
11-12th May 2017  
Hotel Calipolis Sitges, Barcelona



**DRAFT PROGRAM**

**Wednesday 10<sup>th</sup> May**

20:00-21:00 Welcome Reception (Hotel Calipolis)

**Thursday 11<sup>th</sup> May** Room (tba)

<b>Session 1 Setting the scene</b>			
08:20 08:40	<i>Welcome and workshop aims</i>	Pablo Ordejon and Clivia Sotomayor Torres	ICN2
08:40 09:10	<i>Alternative Computing in FET and ICT LEIT</i>	Eric Fribourg-Blanc	EC
09:10 09:25	<i>The NEREID CSA project</i>	Livio Baldi	NEREID
09:25 09:50	<i>Architectures and Designs: introduction to key issues (title tbc)</i>	Georgos Fagas (tbc)	Tyndall
09:50 10:15	<i>Equipment and materials for future nanoelectronics (title tbc)</i>	Markus Pfeffer	Fraunhofer IISB
10:15	Coffee break		
<b>Session 2 Photonics- and nanomechanics-based computing</b>			
10:40 11:20	<i>Integrated quantum photonics for computation</i>	Jorge Barreto	University of Bristol
11:20 12:00	<i>Nanophotonic circuits for unconventional computing</i>	Wolfram Pernice	University of Muenster
12:00 12:40	<i>Thermoelectrics of quantum nanoelectromechanical (NEMS) systems</i>	Juzar Thingna	Université du Luxembourg
12:40 13:10	Discussion. Discussant: Clivia Sotomayor Torres (ICN2) Rapporteur: Jeremie Maire (ICN2)		
13:10	Lunch		
<b>Session 3 Computing with spins and magnons</b>			
14:30 15:10	<i>Spintronics for low power computing</i>	Bernard Dieny	CEA
15:10 15:50	<i>Computation approaches with Magnonics</i>	Marius Costache	ICN2
15:50 16:20	Discussion. Discussant: Livio Baldi (NEREID) Rapporteur: Emigdio Chavez-Angel (ICN2)		
16:20	Coffee break		
<b>Session 4 Neuromorphic Computing</b>			
16:45 17:25	<i>NeuRAM3 project Neuromorphic computation</i>	Marc Duranton	CEA
17:25 18:05	<i>RAMP project Real neurons- nanoelectronics Architecture with</i>	Stefano Vassanelli	Universita de Padova

	<i>Memristive Plasticity</i>		
18:05 18:45	<i>Spin Hall nano-oscillator networks for neuromorphic computing</i>	Johan Ackerman	Gothenberg University and KTH
18:45 19:15	Discussion. Discussant: Jouni Ahopelto (VTT) Rapporteur: Ralf Popp (EDACentrum)		
20.30	Workshop dinner		

**Friday 12<sup>th</sup> May** Room (tba)

<b>Session 5 A view from industry</b>			
08:40 09:20	<i>A view from industry: Single Flux quanta computation</i>	Heike Riel	IBM Zurich
09:20 09:30	Discussion. Discussant: Livio Baldi (NEREID) Rapporteur: Clivia Sotomayor (ICN2)		
<b>Session 6 Statistical/thermal physics and computing approaches</b>			
09:30 10:10	<i>Heat Transfer in small scale</i>	J. Miguel Rubi	University of Barcelona
10:10 10:50	<i>Design of Brownian circuits</i>	Sorin Cotofana	TU Delft
10:50 11:20	Discussion. Discussant: Luciano Colombo (University of Cagliari) Rapporteurs: Dr Francesca Costanzo (ICN2)		
11:20	Coffee break		
<b>Session 7 Si-based Classical and quantum computing</b>			
11.50 12:30	<i>MOS-QUITO project CMOS-based qubits</i>	Silvani de Franceschi	CEA- INAC
12:30 13:10	<i>Steep slope devices for emerging energy efficient computation paradigms</i>	Adrian Ionescu	EPFL
13:10 13:40	Discussion. Discussant: Heike Riel (IBM Zurich) Rapporteur: Juliana Jaramillo-Fernandez (KTH)		
13:40	Lunch		
<b>Session 8 Reports</b>			
15.00 15:30	<i>Rapporteur's reports (5 min/sessions 1 to 6)</i>		
15:30 15:40	Wrap up and what is next	Clivia Sotomayor Torres	ICN2
15.40	Coffee break & Workshop ends		
16.00 17:00	Rapporteurs debriefing meeting		