



# Frontiers in Brain Inspired Computing - Magnetism meets Topology



A satellite event of the School of Excellence in Brain Inspired Computing

**July 26-28, 2017, Messina, Italy**  
Aula Magna, Department of Engineering, University of Messina

## PROGRAM

### DAY 1 – Wednesday 26

15:00 – 17:00

#### WELCOME AND INTRODUCTION:

**Giovanni Finocchio**, University of Messina  
Director of the School of Excellence

#### FACILITATED WORKSHOP

*Moderators:*

**Pedram Khalili Amiri**, University of California Los Angeles, USA  
Lecturer of the School of Excellence

**Zhongming Zeng**, Suzhou Institute of Nano-tech and Nano-bionics, China  
Lecturer of the School of Excellence

### DAY 2 – Thursday 27

*Moderator:* **Giuseppina D'Agù**, University of Messina

9:00 – 9:20

#### WELCOME AND INTRODUCTION:

**Giuseppe Anastasi**, Chair of the Department of Biomedical Sciences, Dental Sciences and Sciences of Morphological and Functional Images, University of Messina

**Antonino D'Andrea**, Chair of the Department of Engineering, University of Messina

**Fortunato Neri**, Chair of the Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina

**Luigia Puccio**, Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina

9:20 – 9:40

#### PRESENTATION OF IEEE ITALY SECTION:

**Tiziana Tambosso**, Chair of IEEE Italy Section

#### INVITED TALKS:

9:40 – 10:05

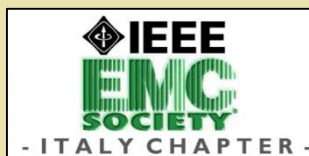
*"Magnonics in skyrmion-hosting chiral magnets"*

**Markus Garst**, Technische Universität Dresden, Germany  
Lecturer of the School of Excellence

10:05 – 10:30

*"Brain-network inspired algorithms for complex big data"*

**Carlo Vittorio Cannistraci**, Technische Universität Dresden, Germany  
Lecturer of the School of Excellence



- 10:30 – 10:45 *“Origin of temperature and field dependence of magnetic skyrmion size in ultrathin nanodots”*  
**Riccardo Tomasello**, University of Perugia, Italy
- 10:45 – 11:00 *“Investigating brain structural abnormalities in Parkinson’s disease via tractography”*  
**Alessandro Calamuneri**, University of Messina
- 11:00 – 11:15 *“Multiple synaptic modulation and memory in ionic film-coated Si nanowire transistors”*  
**Eunhye Baek**, Technische Universitat Dresden, Germany
- 11:15 – 11:30 *“Hybrid CMOS/Spintronic circuit design for bio-inspired applications”*  
**Raffaele De Rose**, University of Calabria, Rende, Italy
- 11:30 – 11:45 *“Stability and manipulation of radial vortices and skyrmions”*  
**Giulio Siracusano**, University of Messina

## DAY 3 – Friday 28

*Moderator:* **Vito Puliafito**, University of Messina

9:00 – 9:10

**WELCOME AND INTRODUCTION:**

**Salvatore Cuzzocrea**, Prorector of Research, University of Messina

**Candida Milone**, Vice-Chair of the Department of Engineering, University of Messina

9:10 – 9:30

**PRESENTATION OF IEEE MAGNETICS SOCIETY ITALY CHAPTER:**

**Tiziana Tambosso**, Chair of IEEE Italy Section

**KEY-NOTE TALK:**

9:30 – 10:15

*“Memcomputing: an efficient brain-inspired computing paradigm”*

**Massimiliano Di Ventra**, University of California San Diego, USA

Lecturer of the School of Excellence

**INVITED TALKS:**

10:15 – 10:40

*“Complexity and nonlinear dynamics in bio-inspired memristor networks”*

**Fernando Corinto**, Politecnico di Torino, Italy

Lecturer of the School of Excellence

10:40 – 10:55

*“Cognitive computing over the cloud”*

**Massimo Villari**, University of Messina

10:55 – 11:10

*“Brain-states classification through a deep learning approach”*

**Cosimo Ieracitano**, University of Reggio Calabria, Italy

11:10 – 11:25

*“How the social brain represents a bio-inspired approach for human-related integrated data for deep learning of complex dynamics on social networks through multiplexity”*

**Marialisa Scatà**, University of Catania, Italy

11:25

**CLOSING:**

**Giovanni Finocchio**, University of Messina

Director of the School of Excellence



### CONTACT INFORMATION

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