SMART SOLUTIONS FROM THE PLANT KINGDOM: BEYOND THE ANIMAL MODELS

October 24, 2011 - Accademia dei Georgofili

Logge Uffizi Corti, Florence (Italy)

Organizers

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Agenda of the Workshop

Time	Speaker	Affiliation	Topic	Status
9.00 -9.10	**Franco Scaramuzzi**	President of the Accademia dei Georgofili	Welcome	*Confirmed*
9.10-9.20	**Barbara Mazzolai** **Stefano Mancuso**	Centre for Micro-BioRobotics@SSSA, Pontedera, Italy Dpt. Plant, Soil & Environment University of Florence, Italy	Welcome	
9.20-9.50	**Barbara Mazzolai**	Centre for Micro-BioRobotics of IIT@SSSA, Pontedera, Italy	Robotics and ICT technologies inspired by plants	
9.50-10.20	**Stefano Mancuso**	Dpt. Plant, Soil & Environment University of Florence, Italy	Communication in plant root	
10.20-10.50	COFFEE BREAK			
10.50-11.35	**George Jeronimidis**	Centre for Biomimetics, University of Reading (UK)	Fibre hierarchies in plants: the key to smart solutions	*Confirmed*
11.35-12.20	**Robin Seidel**	Plant Biomechanics Group University Freiburg, Germany	Innovative biomimetic materials inspired by plants	*Confirmed*
12.20-13.05	**Michaela Eder**	Max Planck Institute of Colloids and Interfaces, Germany	Design principles of plant actuation	*Confirmed*

13.05-14.30	LUNCH BREAK			
14.30-15.15	**Frantisek Baluska**	Institute of Cellular and Molecular Botany, University of Bonn, Germany	Growing roots and their searching behavior	*Confirmed*
15.15-16.00	**Guido Caldarelli**	Institute for Complex Systems, National Research Council (CNR), Rome, Italy	Quantifying the taxonomic diversity in real species communities	*Confirmed*
16.00-16.30	COFFEE BREAK			
16.30-17.15	**Paco Calvo**	Universidad de Murcia, Murcia, Spain	Adaptive behavior and direct perception: ecological lessons from plant neurobiology	*Confirmed*
17.15-18.00	**Camilla Pandolfi**	The European Space Agency, Noordwijk, The Netherlands	Seeds, dispersal and biomimicry	*Confirmed*
18.00-18.15	**Conclusions**			

Motivation and objectives

Biomimetics is attracting the interest of a growing number of scientists and researchers worldwide. The Plant Kingdom represents an amazing source of inspiration for designing and developing smart solutions in different fields. Mimicking plants requires deep investigation of new materials, mechanisms, sensors, actuators, and control schemes and can lead to breakthrough advances of technologies.

In this workshop, we wish to contribute to the discussion on the development of biomimetic solutions inspired by plants. In particular, this workshop will look at the importance of integrating knowledge coming from different fields, as biology, engineering, chemistry, computer science, and physics to conceive and develop advanced systems, with the objectives of:

- ✓ providing an authoritative overview of solutions inspired by plants;
- ✓ stimulating a fruitful and attractive discussion on this emerging scientific area;
- ✓ creating an occasion in which scientists and engineers can offer different perspectives and viewpoints in developing a new class of biomimetic solutions, which exhibit different performance in terms of materials, fabrication technologies, sensors, actuators, computing solutions, etc.;
- ✓ outlining the current opportunities and challenges of biomimetics approach.

The objectives of the workshop are to share and discuss in a broad community the current state of the art concerning the researches in the research areas that look at plants for as inspiration source, to analyze the potentiality of field and how it can impact in future technologies in general, as well as to encourage collaborations and inspire the exploration of novel research lines or projects.

Primary/secondary audience

The novelty of the area and the multidisciplinary approach will stimulate creativity a nd interactions among participants, with the potentiality of a strong impact for different topics in robotics, as the research of new materials and components, the study of the importance of emergent behavior, embodiment, morphological computation, or bioinspiration.

Academic and industrial researchers in different disciplines (robotics, biology, chemistry, biomimetics, etc.) represent the primary audience of the workshop. The high technological and scientific level of the topics addressed can make an impact on young researchers and students at Master and PhD level, who are encouraged to enter this emerging and challenging field of research.