Smart Solutions From The Plant Kingdom

beyond the animal models

October 24, 2011
Accademia dei Georgofili
Logge Uffizi Corti
Florence (Italy)

9.00 - 9.10	**Welcome - Franco Scaramuzzi, President of the Accademia dei Georgofili**
9.10 - 9.20	**Welcome - Barbara Mazzolai, Centre for Micro-BioRobotics@SSSA, Pontedera, Italy. Stefano Mancuso Dpt. Plant, Soil & Environment, University of Florence, Italy**
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*
11.35 - 12.20	**Robin Seidel - Plant Biomechanics Group University Freiburg, Germany** *Innovative biomimetic materials inspired by plants*
12.20 - 13.05	**Michaela Eder - Max Planck Institute of Colloids and Interfaces, Germany** *Design principles of plant actuation*
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*
15.15 - 16.00	**Guido Caldarelli - Institute for Complex Systems, National Research Council (CNR), Rome, Italy** *Quantifying the taxonomic diversity in real species communities*
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*
17.15 - 18.00	**Camilla Pandolfi - The European Space Agency, Noordwijk, The Netherlands** *Seeds, dispersal and biomimicry*
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.

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Organizers
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Con la partecipazione della Cassa di Risparmio di Firenze