Design & Nature IV

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Transactions Editor

Carlos Brebbia
Wessex Institute of Technology
Ashurst Lodge, Ashurst
Southampton SO40 7AA, UK
Email: carlos@wessex.ac.uk

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Design & Nature IV

Comparing Design in Nature with Science and Engineering

Editor

C.A. Brebbia
Wessex Institute of Technology, UK

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Editor:

C.A. Brebbia
Wessex Institute of Technology, UK

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PREFACE

Design in engineering and science has often been inspired by nature. This has been more evident in recent years, after a period during which our civilization thought in terms of taming rather than working in harmony with nature. The consequences of that approach are still with us and have resulted in a world increasingly homogenized, lacking in biodiversity and with increased pollution. Mankind has been slow to learn and even slower to apply the lessons that nature offers, in spite of the urgency of our predicament.

The International Conference on Comparing Design in Nature with Science and Engineering Design offers a unique forum to discuss a variety of studies involving nature and their significance in modern scientific thought and engineering design. The Conference is held biannually, having started in Udine, Italy in 2002, followed by Rhodes, Greece in 2004 and the Wessex Institute of Technology campus in the New Forest, UK in 2006. It has always attracted outstanding contributions which are now permanently archived in the WIT eLibrary (library.witpress.com). This book comprises the edited versions of most of the papers presented at the fourth international meeting held in the Algarve, Portugal in 2008. The emphasis of this Volume is on engineering and architectural applications and on biomimetics, reflecting in some measure current interest in finding environmentally friendly solutions which also optimize the use of natural resources.

This Conference series has given rise to many other important initiatives including the launching of a very successful series on "Design and Nature", consisting up to now of the following volumes:

- Optimization Mechanics in Nature
- Nature and Design
- Compliant Structures in Nature and Engineering
- Design and Information in Biology
- Flow Phenomena in Nature, Volume 1
- Flow Phenomena in Nature, Volume 2

Following the success of the first two meetings, a new Journal was launched, called the "International Journal of Design & Nature and Ecodynamics". The inclusion of Ecodynamics as a main topic in the Journal emphasizes the importance of achieving solutions which are satisfactory in terms of sustainable development. Design, in its broader interpretation, should aim to be in harmony with nature and in balance with natural processes. The earth's ecosystems that run on sunlight are able to teach us the lessons of sustainability. Design guided by those principles aims towards the optimum use of renewable as well as non-renewable natural resources.

In the words of Janine Benyus ("Biomimicry", Harper Perennial, 2002), when referring to learning from nature "In pursuing this path, we do more than ensure our survival. In a world as interconnected as ours, protection of self and protection of the planet are undistinguishable, which is why the deep ecologists say 'The World is my body'".

Carlos A Brebbia
The Algarve, Portugal
2008

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