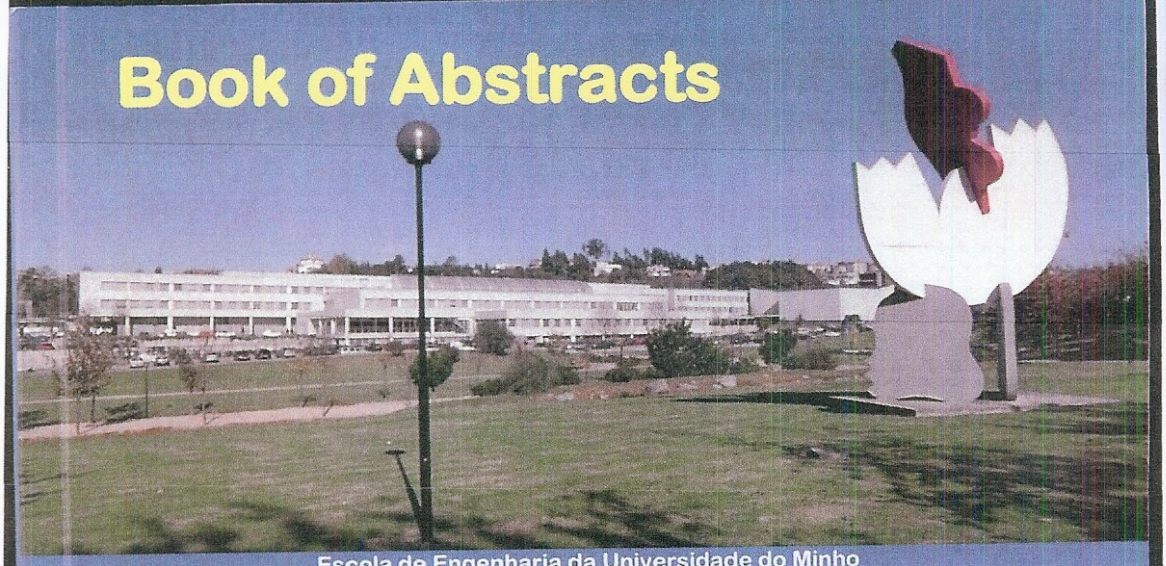
Book of Abstracts



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DESIGNING INNOVATIVE TEXTILE SOLUTIONS BASED ON BIOMIMETCS APPROUCH

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Biomimetics or bionics is dedicated to the study of live beings in terms of shape, function, composition, dynamics, inter-relationship, etc., built over time by the natural sellection. The objective is to use the nature design potential, on what has been created and tested, to improve the developments created by the human being.

This work aims at the establishment of the state-of-art on the application of biomimetics design approuch to develop products and solutions based on fibrous materials, mostly known as textiles. In fact, over the last decade several achievements in this field have been done crossing the whole textile pipeline from fibers to end-use products. The objective is always to use nature as the inspiration to solve nowadays problems of individual end-users or of large scale industrial fields. A classic example is Velcro, which has been developed in 1941, by a suiss engineer, based on the visualization of the parts of plants attached to its clothes after a walk. Recently, the Fastskin fabric, developed by Speedo, has been inspired in the shark skin, allowing the decrease of friction between the swimmer and the water during the competitions. Other examples are the thermochromic and photochromic pigments inspired in animals being able to change colour according to environmental conditions, such as light intensity and temperature.

In this paper, several fibrous nature inspired products are presented and discussed. The biomimetics design methodology is also discussed by analizing different case-studies.