A Bionic Study on the Legs of Insects with Applications in MEMs

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The study of microtechnologies has received great attention in recent decades. With the rapid development of society, the need for high-level equipment has also increased, thus requiring the building of small mechanisms, with high efficiency and an accessible cost. Our work is based on the idea that by studying the properties of the insect leg, we can make contributions in the areas of scientific interest, by modifying or developing our systems with different uses. The insect's leg is characterized by a fineness and fluidity, especially in the movement, as well as physical properties adapted in accordance with varied specializations of the respective body part. For these reasons, the properties of the insect's leg can be used in creating a robotic micromanipulator. In this project we will consider a structural analysis on the insect's leg in the hope of implementing the data obtained in the design structures in our own designs, such as manipulators or robots. The objective of the study is to make contributions in the field of microelectromechanics by analyzing some special properties of the limbs of insects, with applications in microrobotics. The theme was approached according to the following plan: Theoretical and experimental study of the insect foot and their movement. Documentation on the current state of microtechnologies and the nations of interest for the project. Carrying out different experiments and laboratory work necessary for the realizations of the subsequently developed applications. The development of numerous devices with an applicative character, inspired by characteristics found in the insect's foot.

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