

SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)

Novel Concepts and Technologies to Enable Future Building Blocks in Space Exploration and
Development (3)

Author: Mr. Seyed Ali Nasser

Space Generation Advisory Council (SGAC), Canada, ali.nasser@utoronto.ca

BIO-INSPIRED ROBOTS FOR PLANETARY EXPLORATION

Abstract

Bio-mimetic design has revolutionized the way many products are designed. By looking at natural processes, which have evolved over long durations of time, and modeling systems around them, we make sure that systems can optimally meet our needs.

Robotics has been one of the areas drastically affected by bio-mimetic design. Bio-inspired robots use many mechanisms found in nature to ease locomotion or flight.

Obviously, as bio-inspired mechanisms are based on organisms which developed on earth, they have been optimized for the earth environment. This work aims at looking at some of the recently proposed bio-inspired robotic mechanisms and assess whether they can be modified for use in planetary exploration endeavors. The most useful mechanisms are identified, along with possible applications in space exploration.