

## SPACE EXPLORATION SYMPOSIUM (A3)

## Poster Session (P)

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RESEARCH ON FROG-INSPIRED BIOMIMETIC JUMPING ROBOT FOR INTERSTELLAR  
DISCOVERY**Abstract**

The research on biomimetic jumping robot is a forward positional task in robot field. The robot owes the feature of reasonable, agile and high-efficiency in structure and movement like biosome, whose jumping movement could adjust to different ground, realize getting across canal and obstacle. The robot reveals excellent ability on movement territory and avoiding risk, so it is suitable to achieve the task in non-frame and indeterminism circumstance such as interstellar discovery instead of human. This paper presents a biomimetic jumping robot including mechanism and control system. The 5-bar linkage mechanism hindlimb and serial mechanism forelimb is designed based on a mechanical model which put forward by analysis of biological characteristics and jumping movement mechanism. Control system is designed based on hierarchical and modularization strategy, which includes upper computer for movement trajectory planning and embedded controller for joint control. Then the experiment about the stance adjusting and horizontal jump is implemented, and the effectiveness of bionic design, reasonability of mechanism design and jumping ability of robot is verified.