

4th World Congress on

ROBOTICS AND ARTIFICIAL INTELLIGENCE

October 23-24, 2017 Osaka, Japan

Miniature microdrive for locomotion control in freely moving lizard *Gekko gekko*Wenbo Wang¹, Yuanhan Jiang¹, Cai Lei², Hao Wang¹ and Hengdong Liu¹¹Nanjing University of Aeronautics and Astronautics, China²Shandong Academy of Sciences, China

For neural stimulation and recording in neuro-ethology, different customized electrode micro drives are required for different unrestrained species. We specially designed and fabricated a novel electrode micro drive for studying the locomotion control of a freely moving *Gekko gekko* lizard. Opening the skull of the lizard was required for the implantation of the electrodes in the midbrain. The micro drive system consists mainly of a titanium case to protect the skull opening and shield the external signal and a screw-and-nut mechanism to drive the electrode plate. The miniature system has a volume of 9.6 mm × 9.8 mm × 11.8 mm and a mass of 2.05 g, which is suitable for the head morphology and loading capability of the lizard. The system was successfully applied to study the locomotion control of unrestrained *Gekko gekko* lizards, which exhibited diverse behaviors corresponding to various implantation depths of the electrodes and could be efficiently guided to a lateral orientation.

Recent Publications

1. Wang Z Y, Dai Z D, Li W, Ji A H, Wang W B and Dai Z D (2015) How do the substrate reaction forces acting on a gecko's limbs respond to inclines? *The Science of Nature-Naturwissenschaften*; 102: 1-15.
2. Shang L, Wang W B, Liu T T, et al. (2014) An Equipment Used for Studying the Vestibular Perception of *Gekko gekko*. *Applied Mechanics and Materials*; 461: 570-576.

Biography

Wenbo Wang is Associate Professor at Nanjing University of Aeronautics and Astronautics, China. Wenbo Wang has his expertise in the bio-mimetics on gecko locomotion, i.e., modulation on gecko's locomotion.

wwb523@nuaa.edu.cn

Notes: