

深空探测学报(中英文)(双月刊)

第9卷 第4期 2022年8月

目次

专刊：小天体探测与防御

(主持人：崔平远, 教授, 北京理工大学)

尚海滨, 教授, 北京理工大学)

- 小天体引力场建模技术进展 尚海滨, 韦炳威, 卢榘承 (359)
- 黄道面内多目标小行星飞越探测任务轨道优化设计 郝志鑫, 郑建华, 李明涛 (373)
- 双小行星系统不规则引力场中的共振轨道动力学研究 崔书豪, 王悦, 张瑞康 (382)
- 与地共轨小行星附近测绘轨道的性能分析与评估 石玉, 舒磊正, 张皓 (391)
- 小天体导航陆标深度学习预测框匹配算法 肖扬, 李帅, 王光泽, 等 (400)
- 小天体近距离视觉导航的陆标鲁棒匹配方法 胡荣海, 黄翔宇, 徐超 (407)
- 小天体激光地形测绘与导航一体化设计方法 郭绍刚, 李林, 朱飞虎, 等 (417)
- 小天体地形动态模拟与着陆视景仿真系统设计 姚文龙, 刘毅, 邵巍, 等 (427)
- 小行星动能撞击自主导航与制导方法研究 黄翔宇, 徐超, 胡荣海, 等 (438)
- 小天体表面探测器弹跳运动与路径规划 王棒, 徐瑞, 李朝玉, 等 (447)

专刊主持人简介



崔平远, 北京理工大学特聘教授, 国际宇航科学院通讯院士, 国务院学位委员会学科评议组成员, “深空 973”项目首席科学家, 国家重点研发计划项目负责人, “深空自主导航与控制”工信部重点实验室主任。主要从事深空探测器轨道设计与优化、导航制导与控制等方面的研究。获国家科技进步二等奖、省部级一等奖等奖励 10 余项, 发表论文 100 余篇, 出版专著 5 本, 获授权国家发明专利 80 余项。



尚海滨, 北京理工大学教授, 博士生导师, 中国宇航学会深空探测技术专业委员会委员, 主要从事航天器轨道动力学与控制方向研究工作。作为负责人先后主持国家自然科学基金、国家重点研发计划课题、民用航天计划等项目, 发表学术论文 50 余篇, 授权国家发明专利 12 项, 出版教材 2 部, 获得国家科技进步二等奖 1 项, 省部级一、二等奖 3 项。

Journal of Deep Space Exploration

Vol. 9 No. 4 (August, 2022)

CONTENTS

Special Issue: Small Celestial Body Exploration and Defense

(Guest Editor: CUI Pingyuan, Professor, Beijing Institute of Technology)

SHANG Haibin, Professor, Beijing Institute of Technology)

Recent Advances in Modeling Gravity Field of Small Bodies	SHANG Haibin, WEI Bingwei, LU Jucheng (359)
Trajectory Optimization Design for Multiple-Target Asteroid Flyby Mission in Ecliptic Plane	HAO Zhixin, ZHENG Jianhua, LI Mingtao (373)
Dynamics of Resonant Orbits in the Irregular Gravitational Field of a Binary Asteroid System	CUI Shuhao, WANG Yue, ZHANG Ruikang (382)
Analysis and Evaluation of Mapping Orbits in the Vicinity of Co-Orbital Asteroids	SHI Yu, SHU Leizheng, ZHANG Hao (391)
Deep Learning Prediction Frame Matching Algorithm of Small Celestial Navigation Landmarks	XIAO Yang, LI Shuai, WANG Guangze, et al (400)
Robust Landmark Matching Method for Visual Navigation Near Small Bodies	HU Ronghai, HUANG Xiangyu, XU Chao (407)
Integrated Design Method for Laser Topographic Mapping and Navigation of Small Celestial Bodies	GUO Shaogang, LI Lin, ZHU Feihu, et al (417)
Design of Terrain Dynamic Simulation and Landing View Simulation System for Small Celestial Bodies	YAO Wenlong, LIU Yi, SHAO Wei, et al (427)
Autonomous Navigation and Guidance for Asteroid Kinetic Impact Mission	HUANG Xiangyu, XU Chao, HU Ronghai, et al (438)
Bouncing Motion and Path Planning of Small Body Surface Rover	WANG Bang, XU Rui, LI Zhaoyu, et al (447)

Guest Editor Introduction

Pingyuan Cui is currently a Distinguished Professor of Beijing Institute of Technology, a Corresponding Member of the International Academy of Astronautics, and a Member of the Discipline Evaluation Group of the Academic Degrees Committee of the State Council. He is entitled the Chief Scientist of the National Basic Research Program of China (973 Program) on deep space exploration, and is now the Director of Key Laboratory of Autonomous Navigation and Control for Deep Space Exploration, Ministry of Industry and Information Technology. His research interests mainly include orbit design and optimization, and autonomous guidance, navigation, and control. Prof. Cui has received over 10 awards including the Second Prize of the National Science and Technology Progress Award and the First Prizes of the provincial/ministerial level-awards. Until now, he has published more than 100 academic papers and 5 books, and owned more than 80 authorized patents.

Haibin Shang, Professor of Beijing Institute of Technology, Doctoral Supervisor, Member of the Committee of Deep Space Exploration Technology Chinese Academy of Astronautics, mainly engaged in the research of spacecraft orbital dynamics and control. As the person in charge, he has presided over the National Natural Science Foundation of China, the National Key Research and Development Program, the Civil Space Program and other projects. He also published more than fifty academic papers, authorized twelve national invention patents, published two textbooks, won one National Science and Technology Progress Second Prize, and three Provincial and Ministerial Prizes.