Symposium Program

Monday June 20, 2016

8:15	Registration		
9:15	Welcome and Introductions(room No.5) Liu Hong		
9:30	Session1 (room No.5) Programmatics Tian Yulong Erick Dupuis Thilo Kaupisch Gianfranco Visentin Takashi Kubota		
12:00	Lunch		
14:00	Session 2a(room No.5) On-orbit servicing (1)	Session2b(room No.2) Cooperative robotis + Terrain assessment	Session 2c(room No.3) Test Bed
15:40	Coffee Break		
16:00	Session3a(room No.5) Plenary rovers	Session3b(room No.2) Simulation (1)	Session3c(room No.3) Navigation (1)
18:15	Welcome reception		
20:00	End of Day 1		

Tuesday June 21, 2016

8:10	Arrival		
8:20	Session 4a: (room No.5) On-orbit servicing (2)	Session 4b: (room No.2) Simulation (2)	Session 4c: (room No.3) Navigation (2)
10:00	Coffee Break		
10:20	Session 5a(room No.5) Space Mechanism Design (1)	Session 5b(room No.2) Advanced Control Technology(1)	Session 5c(room No.3) Planning
12:00	Lunch		
14:00	Tour to China Academy of Space Technology		
16:30	End of Technical Tour		
16:40	Buses Depart CAST for Banquet Location		
18:00	Banquet		
21:00	Buses Depart for Friendship Hotel		

Wednesday June 22, 2016

8:10	Arrival

8:20	Session 6a: (room No.5) Space Mechanism Design (2)	Session 6b: (room No.2) Advanced Control Technology(2)	Session 6c: (room No.3) Remote Operation (1)
10:00	Coffee Break		
10:20	Session 7a(room No.5) Space Components (1)	Session 7b(room No.2) Advanced Control Technology(3)	Session 7c(room No.3) Remote Operation (2)
12:00	Lunch		
13:30	Session 8a(room No.5) Space Components (2)	Session 8b(room No.2) Vision / sensors (1)	
15:10	Coffee Break		
15:25	Session 9a(room No.5) Wheel/soil interaction + Scheduling	Session 9b(room No.2) Vision / sensors (2) + Future Application	
17:30	End of Day 3		

Note: A talk in Progammatics session lasts for 30 minutes, an ordinary talk lasts for 25 minutes.

Session ***On-orbit servicing (1)***			
1	America	Gee Seth	Toward Performing a Filter-Vacuuming Procedure Using a Humanoid Robot on ISS
2	China	Gao Xuehai	Approach Method of a Formation Space Robotic System for On-orbit Servicing of GEO
3	Germany	Scherzinger Stefan	Vision-Based Localization of Modular Satellite Interfaces for Robotic On-Orbit Manipulation
4	China	Liang Jie	Impact Analysis of Flexible Space-based Robot Capturing Non-cooperated Targets and Backstepping Control and Vibration Suppression

Session ***On-orbit servicing (2)***			
1	America	Bualat Maria	Astrobee:A New Platform for Free-Flying Robotics Research on the International Space Station
2	China	Wang Youyu	Development of Spacecraft On-Orbit Construction and Maintenance Technologies with Space Robot
3	Canada	Liu Guangjun	A MULTIPLE WORKING MODE APPROACH TO CONTROL OF SPACE MANIPULATOR INTERACTION WITH UNKNOWN TARGETS
4	China	Wu Shuang	Study of a Space Robot Capturing a Fast Rotating Object from a Floating Spacecraft

Session ***Terrain assessment + Cooperative robotics***			
1	Germany	Frank Neuhaus	Autonomous 3D Terrain Mapping and Object Localization for the SpaceBot Camp 2015
2	Europe	Pako Pawel	Regolith sampling and Deep Drilling in Low Gravity environment
3	China	Li Gang	Modeling and virtual decomposition control with stability analysis for multi-arm-multi-joint space robots
4	China	Cheng Jing	Impact Dynamic Modeling for Dual-arm Space Robot Capturing Non-cooperative Spacecraft and Decentralized Adaptive Fuzzy Robust Control for Closed Chain

Session ***Test Bed***			
1	Europe	Evangelos Boukas	HDPR: A Mobile Testbed for Current and Future Rover Technologies
2	Europe	Gianfranco Visentin	Recent Developments on ORBIT, a 3-DoF Free Floating Contact Dynamics Testbed
3	China	Zhang Xiangyang	Using Industrial Robots to Emulate the Contact Dynamics Behavior of a Space Manipulator
4	Germany	Andre Kupetz	Virtual Testbed for Development, Test and Validation of Modular Satellites

Session ***Advanced Control Technology (1)***			
1	China	Liu Yechao	Fuzzy Disturbance Observer-based Control for Flexible-Joint Robot Manipulators
2	Germany	Stoneman, Samantha	A Nonlinear Optimization Method to Provide Real-Time Feasible Reference Trajectories to Approach a Tumbling Target Satellite
3	China	Zhang Lijiao	Based on Adaptive Observer Sliding Mode Control of Free-floating Flexible-joints Space Robot
4	Japan	Honda Akihiko	Estimation of a dynamic behavior for a capture mission using flexible mechanism

Session ***Advanced Control Technology (2)***			
1	America	Henshaw Carl Glen	Memory-Based Robotic Motion Primitive Learning for Kicking and Striking Tasks
2	China	Liang Jie	Robust H_infinity Control and Double Flexible Vibration Active Suppression of Space Robot with Flexible-Link and Flexible-Joint
3	Japan	Uwano Fumito	Adaptive Learning Based on Genetic Algorithm for The Rover in Planetary Exploration
4	China	Tong Chao	Fast sliding mode control of free-floating flexible space robot by fuzzy-based exponential reaching law

Session ***Advanced Control Technology (3)***			
1	China	Cheng Jing	Dynamic for Dual-arm Floating Space Robot with Closed-chain and Recurrent Robust Fuzzy Neural Network for Object Grasping
2	America	Gee Seth	Seat Track Localization and Tracking for Robonaut 2 Mobility on the International Space Station
3	China	Zhao Ziwang	Fault-tolerant control and active vibration suppression of free-floating flexible space robot
4	China	Jing Zheng	Research on management methodology of large spacecraft testing

Session ***Remote Operation (1)***			
1	China	Duan Yixiang	Laser Induced Breakdown Spectroscopy (LIBS) in Space Exploration
2	Europe	Azkarate Martin	Remote Rover Operations: Testing the ExoMars Egress Case
3	China	Huang Panfeng	A Novel Dual-User Shared Teleoperation Training Method with Multiple Dominance Factors
4	Japan	Kimura Shinichi	Document Base Programming System To Realize Seamless Linking Between On-board Software and Ground Operating System

Session ***Remote Operation (2)***			
1	China	Zhang Xiaodong	OPERATION AND CONTROL OF SPACE REMOTE MANIPULATOR
2	Germany	Ribin Balahandran	KONTUR-2 Mission: The DLR Force Feedback Joystick for Space Telemanipulation from the ISS
3	China	Zong Lijun	Occasion Determination for Space Robots Capturing Tumbling Targets
4	America	Gee Seth	A Predictive Interactive Graphical Interface for Supervising a Humanoid Robot across Time Delay

Session ***Planetary rovers***			
1	Canada	Erick Dupuis	Results from CSA's 2015 Mars Analogue Mission in the Desert of Utah
2	Japan	Yuguchi Yudai	Microgravity Experiment of Rock Climbing Locomotion for Exploration Robot on Minor Body
3	Germany	Cordes Florian	SherpaTT: A Versatile Hybrid Wheeled-Leg Rover
4	China	Qian Cheng	Design and Analysis of Tri-Folded and Deployed type Transfer Ramp for Mars Rover

Session ***Space Mechanism Design (1)***			
1	China	Li Bing	Form-finding of Cable Net Structure for Large Mesh Reflector
2	Japan	Kenji Nagaoka	Mobility Performances of Ciliary Locomotion for an Asteroid Exploration Robot under Various Environmental Conditions
3	India	Sandhya Rao	A Versatile Advanced Precision Robotic Space Manipulator for INS-SPACE Applications
4	Japan	Rui Qu	Study on Space Robot's End-Effector Exchange Mechanism

Session ***Space Mechanism Design (2)***			
1	Canada	Lin Jun	Design of an Innovative Micro-rover with Multiple Modes for Mars Exploration
2	Japan	Oikawa Takuto	Thermal Design and Analysis of Conceptual Flight Model of Lunar Exploration Rover
3	China	Su Yilin	The Research of Adsorption Mechanism in Space Crawling Robot On-orbit Servicing for Cooperative Spacecraft
4	Japan	Sakamoto Kosuke	Design Study of Jumping Rover for Planetary Exploration

Session ***Simulation (1)***			
1	Germany	Roy Lichtenheldt	Software-in-the-loop simulation of a planetary rover
2	China	Zhang Lijiao	Based on L-two-gain Robust Controller for Free-floating Multiple Flexible-links Space Robot
3	Germany	Roy Lichtenheldt	Leaping in low gravity – Modeling MASCOT's hopping locomotion on asteroid Ryugu
4	Europe	Jakub Tomasek	A robotic testbed for low-gravity simulation

Session ***Simulation (2)***			
1	Germany	Rainer Krenn	Docking Simulations for ASSIST System Verification
2	China	Wang Mingming	A Real-time Simulation Architecture for Multi-arm Space Robots Based on Rapid Prototyping
3	Germany	Emde Markus	The eRobotics-Approach: Combining Complex Simulations with Realistic Virtual Testing Environments for the Development of Space-qualified LiDAR Sensors
4	China	Dai Qiaolian	L2 Back-stepping Control of Free-floating Space Robot with Flexible Joint Based on Nonlinear Disturbance Observer

Session ***Navigation (1)***			
1	Germany	Schilling Klaus	Safe Near Range Navigation Based on 3D Time-of-Flight Cameras
2	Japan	Shinji Hokamoto	LRF Based Autonomous Navigation System Measuring on Moving Rover
3	America	Littlefield Zakary	Integrating Simulated Tensegrity Models with Efficient Motion Planning for Planetary Navigation
4	Europe	Yol Aurelien	Vision-Based Navigation in Low Earth Orbit

Session ***Navigation (2)***			
1	Canada	Langley Christopher S	Maturing Canadian Autonomous Guidance, Navigation, and Control of Planetary Rovers
2	Japan	Takeishi Naoya	Dynamic Visual Simultaneous Localization and Mapping for Asteroid Exploration
3	America	Greydon Foil	Physical Process Models for Improved Rover Mapping
4	Japan	Ishii Haruyuki	Robust self-position estimation algorithm against displacement of crater detection in the SLIM spacecraft

Session ***Space Components (1)***			
1	China	Hou Liang	Study on Fault-Tolerant Architecture of Motion Control Computer for Space Robot
2	Canada	Christopher S. Langley	Actuator Development for the ExoMars Rover Bogie Electro-Mechanical Assembly
3	Germany	Griebel Hannes	A Light-Weight and Modular High-Performance Payload Computer for Real-Time On-Board Signal Processing and Autonomous Decision Making
4	Japan	Mikawa Masahiko	Attitude Estimation for Small Asteroid Exploration RoversEquipped with Plural Antennae

Session ***Space Components (2)***			
1	Germany	Peter Hastrich	State of the art and recent advances for dry lubricated Harmonic Drive® Gears
2	China	Tian Xiaoyong	3D printing of continuous fiber reinforced composites with a robotic system for potential space applications
3	Germany	Meschede Thomas	Development of ACS, Payloads and Subsystems for modular Satellites Using a Hybrid Test Bed
4	Japan	Takahiro Akutsu	Experimental Evaluation of Voltage Control Methods in Electrical Power System for Planetary Rover

Session ***Wheel/soil interaction + Scheduling***			
1	America	Glick Paul	Design, Modeling, and Results of the One-Directional Self-Locking Clutch Design Applied to NASA's SUPERball Planetary Explorer
2	Japan	Kyohei Maruya	Extended Gripping Conditions of Rock Climber-Like Robot for Asymmetric Gripping Configuration in Microgravity
3	Japan	Higa Shoya	Three-dimensional stress distribution of a rigid wheel on lunar regolith simulant
4	Japan	Kenji Nagaoka	Mobility Characteristics and Control of a Skid-Steering Micro-Rover for Planetary Exploration on Loose Soil
5	China	Zhu Xiaoyu	Job Scheduling for On-orbit Spacecraft Refueling through Plant Growth Simulation Algorithm

Session ***Vision / sensors (1)***			
1	China	Ni Fenglei	A Novel Design on the 12 DOF Force and Acceleration Sensing
2	Japan	Nagata Takuma	Experimental Evaluation of Gyro-based Odometry Focusing on Steering Characteristics of Wheeled Mobile Robot in Rough Terrain
3	Europe	Torres Alex	Omnidirectional stereoscopic vision systems for planetary exploration rovers
4	Japan	Mikawa Masahiko	Attitude Estimation for Small Asteroid Exploration RoversEquipped with Plural Antennae

Session ***Vision / sensors (2) + Future Application***			
1	China	Huang Panfeng	Object tracking using improved spatio-temporal context with Kalman filter
2	Japan	Kosuke Akimoto	Tree-based nonparametric prediction of normal sensor measurement range using temporal information
3	Japan	Satoshi Suzuki	The First Experiment of a High-accuracy 2D Color Marker in Space
4	Japan	Rei Saito	Possibility of Education Project based on Cansat

Session ***Planning***			
1	America	Christopher Cunningham	Multiobjective Waypoint Sequencing for Planetary Rovers with Time-Dependent Energy Constraints
2	Japan	Tanaka Koki	Modeling of LiDAR Measurement Uncertainty for Rover Path Planning
3	America	Inotsume Hiroaki	Slope-Ascent Path Planning for Exploration Rovers
4	Japan	Sakayori Go	Power-synchronized Path Planning for Mobile Robot in Rough Terrain