

08:30-9:00 REGISTRATION

09:00-9:20 OPENING

09:20-10:20 **CABLE DRIVEN ROBOTS I** CHAIR: E. Ottaviano

- (PAPER#05) [09:20-09:40] J-P. Merlet, *Further Analysis of the 2-2 Wire-Driven Parallel Crane*
- (PAPER#02) [09:40-10:00] L. Notash, *On the Minimum 2-Norm Positive Tension for Wire-Actuated Parallel Manipulators*
- (PAPER#14) [10:00-10:20] A. Ghasem and M. Carricato, *Direct Geometrico-Static Problem of Under-Constrained Cable-Driven Parallel Robots with 5 Cables*

10:20-10:40 COFFEE BREAK

10:40-12:00 **CABLE DRIVEN ROBOTS II** CHAIR: J-P. Merlet

- (PAPER#19) [10:40-11:00] V. Schmidt, B. Müller, and A. Pott, *Solving the Forward Kinematics of Cable-Driven Parallel Robots with Neural Networks and Interval Arithmetic*
- (PAPER#25) [11:00-11:20] A. Pott, *An improved Force Distribution Algorithm for Over-Constrained Cable-Driven Parallel Robots*
- (PAPER#40) [11:20-11:40] J. A. Dit Sandretto, G. Trombettoni, D. Daney, and G. Chabert, *Certified Calibration of a Cable-Driven Robot Using Interval Contractor Programming*
- (PAPER#70) [11:40-12:00] G. Castelli and E. Ottaviano, *A Cartesian Cable-Suspended Robot for Aiding Mobility*

12:00-14:00 LUNCH BREAK

14:00-15:00 **MECHANISMS** CHAIR: J. Angeles

- (PAPER#07) [14:00-14:20] S. Li, H. Wang, J. Dai, X. Li, Z. Ren, and S. Xiu, *Topological Representation and Operation of Motion Space Exchange Reconfiguration of Metamorphic Mechanism*
- (PAPER#21) [14:20-14:40] Z. Li and J. Schicho, *Three Types of Parallel 6R Linkages*
- (PAPER#69) [14:40-15:00] C.Huang, W.T. Huang, and G. Kiper, *A Closed-Form Solution of Spatial Sliders for Rigid-Body Guidance*

15:00-15:20 COFFEE BREAK

15:20-16:40 **PARALLEL ROBOTS** CHAIR: S. Bandyopadhyay

- (PAPER#52) [15:20-15:40] P. Lambert and J.L. Herder, *Self Dual Topology of Parallel Mechanisms with Configurable Platforms*
- (PAPER#55) [15:40-16:00] A.G.L. Hovenars, P. Lambert, and J.L. Herder, *Kinematic Design of Two Elementary 3DOF Parallel Manipulators with Configurable Platforms*
- (PAPER#17) [16:00-16:20] M. Urizar, V. Petuya, M. Diez, and A. Hernández, *Dimensional Synthesis of a Spatial Orientation 3-DoF Parallel Manipulator by Characterizing the Configuration Space*
- (PAPER#51) [16:20-16:40] A. Chaker, A. Mlika, M. A. Laribi, L. Romdhane, and S. Zeghloul, *Robust Design Synthesis of Spherical Parallel Manipulator for Dextrous Medical Task*

16:40-17:00 COFFEE BREAK

17:00-18:00 **SYNTHESIS** CHAIR: C. Huang

- (PAPER#62) [17:00-17:20] J. Angeles, *Foundations for the Approximate Synthesis of RCCC Motion Generators*
- (PAPER#46) [17:20-17:40] L. Nurahmi, S. Caro, and S. Briot, *Type Synthesis of Two DOF Translational Parallel Manipulators with Hybrid Legs*
- (PAPER#67) [17:40-18:00] B. Batbold, Y. Yihun, J.S. Wolper, and A. Perez-Gracia, *Exact Workspace Synthesis for RCCR linkages*

08:30-9:00 REGISTRATION

09:00-10:20 **SINGULARITIES** CHAIR: L. Notash

- (PAPER#09) [09:00-09:20] S. Piipponen, T. Arponen, and J. Tuomela, *Classification of Singularities in Mechanism Kinematics*
- (PAPER#12) [09:20-09:40] G. Nawratil, *Non-existence of Planar Projective Stewart-Gough Platforms with Elliptic Self-motions*
- (PAPER#48) [09:40-10:00] C. Borcea and I. Streinu, *Singularity Locus for the Endpoint Map of Serial Manipulators with Revolute Joints*
- (PAPER#65) [10:00-10:20] M. Husty, J. Schadlbauer, S. Caro, and Ph. Wenger, *Non-Singular Assembly Mode Change of 3-RPS Manipulators*

10:20-10:40 COFFEE BREAK

10:40-12:00 **THEORETICAL KINEMATICS** CHAIR: M. Husty

- (PAPER#06) [10:40-11:00] J.M. Selig, *Some Rational Vehicle Motions*
- (PAPER#32) [11:00-11:20] J.M. Porta, L. Ros, B. Schulze, A. Sljoka, and W. Whiteley, *On the Symmetric Molecular Conjectures*
- (PAPER#53) [11:20-11:40] M. Carricato, *Four-Dimensional Persistent Screw Systems of the General Type*
- (PAPER#57) [11:40-12:00] G. Liu, Y. Wu and X. Chen, *Single Exponential Motion and Its Kinematic Generators*

12:00-14:00 LUNCH BREAK

14:00-15:00 **PLANAR LINKAGES** CHAIR: J. Herder

- (PAPER#29) [14:00-14:20] C-C. Lee and J.M. Hervé, *A Blend of Delassus Four-Bar Linkages*
- (PAPER#34) [14:20-14:40] O. Shai and A. Müller, *Computational Algorithm for Determining the Generic Mobility of Floating Planar and Spherical Linkages*
- (PAPER#72) [14:40-15:00] E. Ottaviano, P. Rea, and M. Conte, *Kinematic Analysis of Slider-Cranks Derived from the λ -Mechanism*

15:00-15:20 COFFEE BREAK

15:20-16:40 **APPLICATIONS I** CHAIR: D. Pislá

- (PAPER#42) [15:20-15:40] D. Wang, Z. Wang, H. Dong, and S. Yu, *A Novel Mechanism with Redundant Elastic Constraints for an Actual Revolute Joint*
- (PAPER#71) [15:40-16:00] F.P. Rad, G. Berselli, R. Veretchy, and V. Parenti-Castelli, *Evaluating the Spatial Compliance of Circularly Curved-Beam Flexures*
- (PAPER#74) [16:00-16:20] A. Scholz, I. Stavness, M. Sherman, S. Delp, and A. Kecskeméthy, *Improved Muscle Wrapping Algorithms Using Explicit Path-Error Jacobians*
- (PAPER#23) [16:20-16:40] A. Colomé and C. Torras, *Positioning two Redundant Arms for Cooperative Manipulation of Objects*

16:40-17:00 COFFEE BREAK

17:00-18:00 **APPLICATIONS II** CHAIR: L. Romdhane

- (PAPER#16) [17:00-17:20] S. Bai, *Shape Modeling of Variable Curvature Continuum Robots*
- (PAPER#28) [17:20-17:40] T. Ikeda, Y. Takeda, and D. Matsuura, *Spherical Parallel Mechanism with Variable Target Point*
- (PAPER#41) [17:40-18:00] J. Borrás-Sol and A. Dollar, *Framework comparison between a multifingered hand and a parallel manipulator*

14:00-15:20 DYNAMICS AND CONTROL CHAIR: C. Pinto

- (PAPER#24) [14:00-14:20] T. Gayral and D. Daney, *Necessary Conditions for Calibration and Observability Issues*
- (PAPER#18) [14:20-14:40] A. Müller and M. Ruggiu, *Self-Calibration of Redundantly Actuated PKM Exploiting Kinematic Landmarks*
- (PAPER#33) [14:40-15:00] A. Klimchik, S. Caro, Y. Wu, D. Chablat, B. Furet, and A. Pashkevich, *Stiffness Modeling of Robotic Manipulator with Gravity Compensator*
- (PAPER#47) [15:00-15:20] O. Carbajal-Espinosa, L.E. González-Jiménez, A. Loukianov, and E. Bayro-Corrochano, *Robust Dynamic Control of a Humanoid Torso using Super Twisting Algorithm and Conformal Geometric Algebra*

15:20-15:40 COFFEE BREAK

15:40-17:00 WORKSPACE CHARACTERIZATION, POSITION ANALYSIS AND PATH PLANNING CHAIR: A. Kecskeméthy

- (PAPER#36) [15:40-16:00] A.S. Rangaprasad and S. Bandyopadhyay, *Determination of the Safe Working Zone of a Parallel Manipulator*
- (PAPER#45) [16:00-16:20] A. Karimi, M.T. Masouleh, and Ph. Cardou, *Obtaining the Maximal Singularity-Free Workspace of 6-UPS Parallel Mechanisms via Convex Optimization*
- (PAPER#54) [16:20-16:40] M.H.F. Kaloorazi, M.T. Masouleh, S. Caro, and B.M. Gholamali, *Determination of Maximal Singularity-Free Workspace of Parallel Mechanisms Using Constructive Geometric Approach*
- (PAPER#27) [16:40-17:00] L. Ros, J.M. Porta, O. Bohigas, M. Manubens, C. Rosales, and L. Jaillet, *An Open-Source Toolbox for Motion Analysis of Closed-chain Mechanisms*