



Advances in Robot Kinematics

11th International Symposium

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**SCIENTIFIC
PROGRAMME**

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In collaboration with

The “Jožef Stefan” Institute, Ljubljana, Slovenia

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SUNDAY, JUNE 22

17.00-20.00: Registration and Welcome address

MONDAY, JUNE 23

9.00-10.45: Singularity Analysis of Parallel Manipulators I

M. Conconi, M. Carricato

A NEW ASSESSMENT OF SINGULARITIES OF PARALLEL KINEMATIC CHAINS

J. Hubert, J.P. Merlet

SINGULARITY ANALYSIS THROUGH STATIC ANALYSIS

G. Gogu

CONSTRAINT SINGULARITIES AND THE STRUCTURAL PARAMETERS OF PARALLEL ROBOTS

X. Kong

FORWARD DISPLACEMENT ANALYSIS AND SINGULARITY ANALYSIS OF A 3-RPR PLANAR PARALLEL MANIPULATOR

10.45-11.15: Coffee break

11.15-12.30: Singularity Analysis of Parallel Manipulators II

T. Tanev

GEOMETRIC ALGEBRA APPROACH TO SINGULARITY OF PARALLEL MANIPULATORS WITH LIMITED MOBILITY

P. Ben-Horin, M. Shoham, S. Caro, D. Chablat, P. Wenger

SINGULAB – A GRAPHICAL USER INTERFACE FOR THE SINGULARITY ANALYSIS OF PARALLEL ROBOTS BASED ON GRASSMANN-CAYLEY ALGEBRA

D. Kanaan, P. Wenger, D. Chablat

SINGULARITY ANALYSIS OF LIMITED-DOF PARALLEL MANIPULATORS USING GRASSMANN-CAYLEY ALGEBRA

12.30-14.30: LUNCH

14.30-16.15: Design of Robots and Mechanisms I

M. Gouttefarde, S. Krut, O. Company, F. Pierrot, N. Ramdani

ON THE DESIGN OF FULLY CONSTRAINED PARALLEL CABLE-DRIVEN ROBOTS

P. Laroche

SYNTHESIS OF PART ORIENTING DEVICES FOR SPATIAL ASSEMBLY TASKS

A. Rojas Salgado, Y. Ledezma Rubio

MINIMUM ENERGY MANIPULATOR DESIGN

G.S. Soh, J.M. McCarthy

SYNTHESIS AND ANALYSIS OF A CONSTRAINED SPHERICAL PARALLEL MANIPULATOR

16.15-16.45: Coffee break

16.45-18.00: Design of Robots and Mechanisms II

P. Ben-Horin, F. Thomas

A 3-MOTOR 6-DOF PARALLEL ROBOT

M. Khan, M. Zoppi, R. Molfino

4-DOF PARALLEL ARCHITECTURE FOR LAPAROSCOPIC SURGERY

C. Grand, P. Martinelli, J.-B. Mouret and S. Doncieux

FLAPPING-WING MECHANISM FOR ABIRD-SIZED UAVS: DESIGN, MODELING AND CONTROL

TUESDAY, JUNE 24

9.00-10.45: Methods in kinematics I

M. Janiak, K. Tchon

EXTENDED JACOBIAN INVERSE KINEMATICS AND APPROXIMATION OF DISTRIBUTIONS

J.M. Selig, P. Donelan

A SCREW SYZYGY WITH APPLICATIONS TO ROBOT SINGULARITY COMPUTATION

K. Tchon, L. Malek

SINGULARITY ROBUST JACOBIAN INVERSE KINEMATICS FOR MOBILE MANIPULATORS

K. Wohlhart

ROBOTS BASED ON ASSUR GROUP A (3.5)

10.45-11.15: Coffee break

11.15-12.30: Methods in kinematics II

G. Le Vey

KINEMATICS OF FREE-FLOATING SPACE SYSTEMS THROUGH OPTIMAL CONTROL THEORY

P. Donelan

GENERICITY CONDITIONS FOR SERIAL MANIPULATORS

I. Parkin

ALTERNATIVE FORMS FOR DISPLACEMENT SCREWS AND THEIR PITCHES

12.30-14.30: LUNCH

14.30-16.15: Motion Planning and Mobility I

S. Ambike, J. Schmiedeler

TIME-INVARIANT STRATEGIES IN COORDINATION OF HUMAN REACHING

A. Muller, J. Rico

MOBILITY AND HIGHER ORDER LOCAL ANALYSIS OF THE CONFIGURATION SPACE OF SPATIAL MECHANISMS

J.F. Gauthier, J. Angeles, S. S. Nokleby

OPTIMIZATION OF A TEST TRAJECTORY FOR SCARA SYSTEMS

S. Lahouar, S. Zegloul, L. Romdhane

SINGULARITY FREE PATH PLANNING FOR PARALLEL ROBOTS

16.15-16.45: Coffee break

16.45-18.00: Motion Planning and Mobility II

J. Carretero, I. Ebrahimi, R. Boudreau

A COMPARISON BETWEEN TWO MOTION PLANNING STRATEGIES FOR KINEMATICALLY REDUNDANT PARALLEL MANIPULATORS

O. Alba-Gomez, A. Pamanes, P. Wenger

TRAJECTORY PLANNING OF PARALLEL MANIPULATORS FOR GLOBAL PERFORMANCE OPTIMIZATION

E. Demircan, L. Sentis, V. De Sapio, O. Khatib

HUMAN MOTION RECONSTRUCTION BY DIRECT CONTROL OF MARKER TRAJECTORIES

WEDNESDAY, JUNE 25

9.00-10.45: Performance and Properties of Mechanisms I

A. Karger

NEW SELF-MOTIONS OF PARALLEL MANIPULATORS

M. Rabl, B. Jüttler, L. Gonzales-Vega

EXACT ENVELOPE COMPUTATION FOR MOVING SURFACES WITH QUADRATIC SUPPORT FUNCTIONS

G. Berselli, R. Vertechy, G. Vassura, V. Parenti-Castelli

A COMPOUND-STRUCTURE FRAME FOR IMPROVING THE PERFORMANCE OF A DIELECTRIC ELASTOMER ACTUATOR

E. Macho, O. Altuzarra, C. Pinto, A. Hernandez

TRANSITIONS BETWEEN MULTIPLE SOLUTIONS OF THE DIRECT KINEMATIC PROBLEM

10.45-11.15: Coffee break

11.15-12.30: Performance and Properties of Mechanisms II

N. Rakotomanga, D. Chablat, S. Caro

KINETOSTATIC PERFORMANCE OF A PLANAR PARALLEL MECHANISM WITH VARIABLE ACTUATION

G. Nawratil

RESULTS ON PLANAR PARALLEL MANIPULATORS WITH CYLINDRICAL SINGULARITY SURFACE

C. Quennouelle, C. Gosselin

STIFFNESS MATRIX OF COMPLIANT PARALLEL ROBOTS

12.30-14.30: LUNCH

14.30-19.30: Excursion to Guérande and visit of Salt Marsh Museum

THURSDAY, JUNE 26

8.30-10.15: Measure and Calibration I

S. Briot, I. Bonev

A MEANINGFUL MEASURE FOR ORIENTATION ERRORS OF SPATIAL ROBOTS

P. Cardou, J. Angeles

ANGULAR-VELOCITY ESTIMATION FROM THE CENTRIPETAL COMPONENT OF THE RIGID-BODY ACCELERATION FIELD

R. Di Gregorio

A DIFFERENT POINT OF VIEW TO DEFINE THE DISTANCE BETWEEN TWO RIGID-BODY POSES

P. Last, C. Budde, D. Schütz, J. Hesselbach, A. Raatz

PARALLEL ROBOT CALIBRATION BY WORKING MODE CHANGE

10.15-10.45: Coffee break

10.45-12.00: Measure and Calibration II

S. O'Brien, J. Carretero

AUGMENTED MODEL OF THE 3-PRS MANIPULATOR FOR KINEMATIC CALIBRATION

J.S. Plante, S. Dubovsky

THE CALIBRATION OF A PARALLEL MANIPULATOR WITH BINARY ACTUATION

S. Barthélémy, P. Bidaud

STABILITY MEASURE OF POSTURAL DYNAMIC EQUILIBRIUM

12.00-13.30: LUNCH

13.30-14.45: Kinematic Analysis and Workspace I

M. Husty, E. Ottaviano, M. Ceccarelli

A GEOMETRICAL CHARACTERIZATION OF WORKSPACE SINGULARITIES IN 3R MANIPULATORS

C. D. Crane

KINEMATIC ANALYSIS OF A PLANAR TENSEGRITY MECHANISM WITH PRE-STRESSED SPRINGS

De Santis, B. Siciliano

INVERSE KINEMATICS OF ROBOT MANIPULATORS WITH MULTIPLE MOVING CONTROL POINTS

14.45-15.00: Coffee break

15.00-16.15: Kinematic Analysis and Workspace II

C.C Lee, J. Hervé

ON THE DELASSUS PARALLELOGRAM

A. Pott

FORWARD KINEMATICS AND WORKSPACE DETERMINATION OF A WIRE ROBOT FOR INDUSTRIAL APPLICATIONS

D. Pislá, N. Plitea, C. Vaida

KINEMATIC MODELING AND WORKSPACE GENERATION FOR A NEW PARALLEL ROBOT USED IN MINIMALLY INVASIVE SURGERY