

AGACSE 2015

Early Proceedings Index

Plenary lectures

David **HESTENES** (Keynote Lecture)

Fifty Years with Geometric Algebra: a retrospective.

Pierre **ANGLÈS**

Geometric algebras and spinors

Eduardo **BAYRO**-Corrochano

Geometric Algebra for Cybernetics

Leo **DORST**

Projective Transformations as Versors

Eckhard **HITZER**

Fourier Transformations in Conformal Geometric Algebra

Anthony **LASENBY**

*Geometric Algebra as a unifying language for Physics & Engineering
and its use in the study of Gravity*

Waldyr A. **RODRIGUES, Jr.**

Concept of the Lie Derivative of Spinor Fields. A Geometric Motivated Approach.

Steve **SANGWINE**

MATLAB toolbox for Clifford Algebras.

Chris **DORAN** (pre-dinner talk)

Game theory: From Black Holes to Battlefield 4.

Index of contributions

- A Only abstract
- | Plenary talk.
- || Parallel talk.
- PP Poster presentation.

The order is alphabetical of the **FAMILY NAME** of the presenter.

Timo **ALHO** (||)

Coordinate-free evaluation of integrals in geometric calculus.

Rafael **ALVES** and Carlile Lavor (A, ||)

Clifford algebra applied to the molecular distance geometry problem.

Murat **AN** and Chueng-Ryong Ji (||)

Construction of Clifford representation of spin-1 spinors by component spinors and relation of them with left ideal spinors under Clifford and Grassmann basis.

Linda Osuna, Humberto Caballero, Oscar Carbajal, Alexander Loukianov
and Eduardo **BAYRO-CORROCHANO** (A, PP)

Modeling, simulation and control for a bipedal robot using CGA.

Luis Lechuga-Gutiérrez, Oscar Carbajal-Espinosa and Eduardo **Bayro Corrochano** (A, PP)

A geometric approach for PID controller design.

Gehová López-González, Eduardo **BAYRO-CORROCHANO** and Nancy Arana Daniel (||)

Parallel Clifford support vector machines using the Gaussian kernel.

Gehová López-González, Nancy Arana Daniel, Olivier Stasse, Mehdi Benallegue,
Eduardo **BAYRO-CORROCHANO** (PP)

Sphere-torus-patch bounding volumes using conformal geometric algebra.

José Gerardo Soria-García, Gerardo Altamirano-Gómez, Susana Ortega-Cisneros
and Eduardo **BAYRO-CORROCHANO** (PP)

*FPGA Implementation of a geometric voting scheme
for the extraction of geometric entities from images.*

Peter **CAMERON** (||)

Linking gauge theory gravity with quantized impedances.

Leobardo **CAMPOS-MACÍAS**, Oscar Carbajal-Espinosa, Alexander Loukianov
and Eduardo Bayro Corrochano (||)

Inverse kinematics for a 6-DOF leg walking humanoid.

Pablo **COLAPINTO** (| |)

Composing surfaces with conformal rotors.

Oliver **CONRADT** (A, | |)

Comparing Grassmann and projective algebra.

Claude **DAVIAU** (|)

Three Clifford algebras for four kinds of interactions.

Pierre-Philippe **DECHANT** (|)

The E_8 geometry from a Clifford perspective.

Leo **DORST** (A, |)

The construction of 3D conformal motions.

Rodolfo **FIORINI** (|)

GA and CICT for stronger arbitrary multi-scale biomedical and bioengineering solutions.

Silvia **FRANCHINI**, Antonio Gentile, Filippo Sorbello, Giorgio Vassallo
and Salvatore Vitabile (| |)

A family of embedded coprocessors with native geometric algebra support.

Ramon **GONZÁLEZ CALVET** (|)

*The geometric solution to the three-body problem
and its application to colour image processing and quantum mechanics.*

Dietmar **HILDENBRAND**, Justin Albert and Patrick Charrier (| |)

Geometric algebra computing for heterogeneous systems.

Hongbo Li, Lei Dong, Changpeng Shao and Lei **HUANG** (Prize lecture)

Elements of line geometry with geometric algebra.

Rimvydas **KRASAUSKAS** (A, | |)

Unifying theory of Pythagorean-normal surfaces.

Peter **LEWINTAN** (A, | |)

Soap films and the Gauss map.

Hongbo **LI** (A, |)

Fundamentals of 3D Clifford bracket algebra.

Gene **MCCLELLAN** (A, | |)

*Application of geometric algebra to the electroweak sector
of the standard model of particle physics.*

E. Ulises **MOYA-SANCHEZ** and Marcela Bonell Manjarrez (|)

Quaternion atomic phase magnification for 3D motion.

Jaroslav Hrdina, Ales **NÁVRAT**, Peter Vasik and Radek Matousek (| |)

Geometric control of the trident snake robot based on CGA.

Margarita **PAPAEFTHYMIU**, George Papagiannakis, Andreas Aristidou and Marinos Ioannides (A, |)

A conformal geometric algebra framework for mixed reality and mobile display.

Alba **PÉREZ-GRACIA** and Federico Thomas (PP)

Clifford algebra representation of grasping and manipulative hand actions for kinematic synthesis.

Alessandro **PEROTTI** (|)

Slice-regular functions over Clifford algebras and harmonic functions.

Dimiter **PRODANOV** (PP)

Clifford algebra support in MAXIMA.

Rida T. Farouki, Graziano Gentili, Carlotta Giannelli, Alessandra Sestini and Caterina **STOPPATO** (A, |)

Quaternionic polynomial problems for the construction of Pythagorean-hodograph curves.

Murat **TANISLI** and Neslihan Sahin (A, PP)

Electromagnetism-like Equations for Fluids in Higher Dimensions.

Federico **THOMAS** and Alba Pérez-Gracia (|)

On Cayley's factorization of 4D rotations and applications.

Augusto Miss, Lino Resendis and Luis **TOVAR** (A, PP)

Quaternionic $F(p, q, s)$ Function Spaces.

Jaroslav Hrdina, Ales Návrát, Peter **VASIK** and Radek Matousek (| |)

Geometric control of robotic snakes based on CGA: (4,5,7,8-10) filtration.

Terje **VOLD** (| |)

Improved computational electromagnetism by least action.

Samuel **WAINER**, Waldyr Rodrigues, Eduardo Notte Cuello, Rivera Tapia and Igor Kondrashuk (|)

A Clifford bundle approach to the wave equation of a spin 1/2 fermion in the De Sitter manifold.

Julio **ZAMORA-ESQUIVEL**, Alejandro Madrigal, Miguel Padilla, Allen Galaviz and Ana Paulina Cassale (| |)

Line segments extraction from images using RBF in CGA.

Václav **ZATLOUKAL** (| |)

Classical field theories from Hamiltonian constraint: Canonical equations of motion and local Hamilton-Jacobi theory.