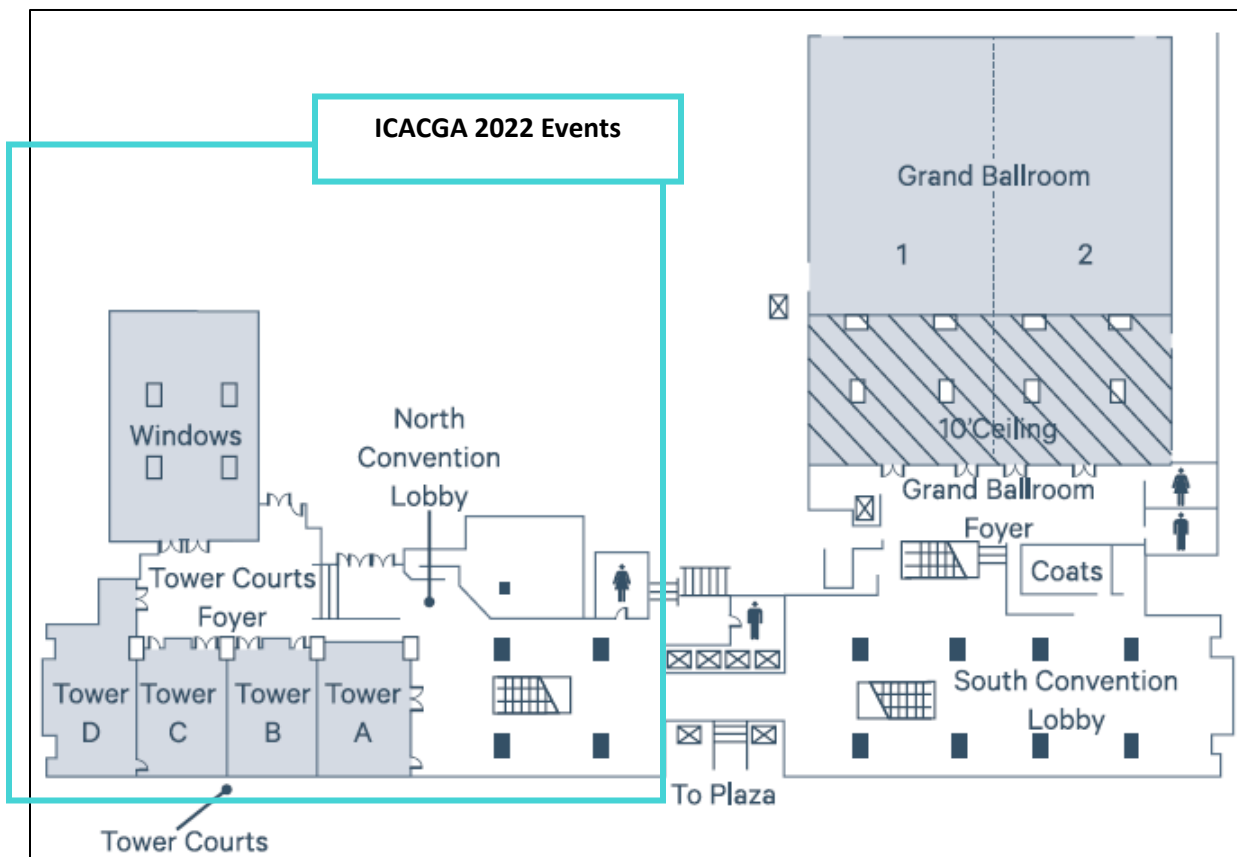


**SUNDAY, OCTOBER 2, 2022**

DATE/TIME	EVENT
2:00 – 5:00 pm	Registration/Information
6:00 – 7:30 pm	Welcome reception Art Exhibition – Alyn Rockwood

**SHERATON DOWNTOWN DENVER  
TOWER BUILDING, SECOND LEVEL**



## MONDAY, OCTOBER 3, 2022

DATE/TIME	EVENT	SPEAKER / AUTHORS	TALK TITLE
7:30 am – 5:00 pm	<b>Registration / Information</b>		
8:15 – 8:30 am	<b>Welcome</b>	General Chair David Silva	
8:30 – 9:30 am	<b>Keynote 1</b>	Michael Kass	Toward the Open Metaverse
9:30 – 10:05 am	<b>Invited</b>	Leo Dorst	They Do It with Mirrors – The Essence of PGA
10:05 – 10:30am	<b>Networking Break/ Poster Presentations</b>		
10:30 – 11:05 am	<b>Invited</b>	Dietmar Hildenbrand	Geometric Algebra Computing for Computer Graphics Using GAALOP
11:05 – 11:30 am		Kai Neumann, Dietmar Hildenbrand, Florian Stock, Christian Steinmetz and Maximilian Michel	GAAlign: Robust Sampling-based Point Cloud Registration using Geometric Algebra
11:30 – 11:55 am		Huijing Yao, Stephen Mann and Qinchuan Li	Line--Cyclide Intersection and Colinear Point Quadruples in the Double Conformal Model
11:55 am – 12:20 pm		Anna Derevianko and Petr Vašík	On image similarity recognition using Geometric Algebra for Conics
12:20 – 1:50 pm	<b>Networking Lunch (lunch provided)</b>		
1:50 – 2:25 pm	<b>Invited</b>	Nek Valous	Computational image processing workflows using quaternions
2:25 – 3:00 pm	<b>Invited</b>	Chris Doran	A lightweight implementation of GA in Julia
3:00 – 3:25 pm		Guilherme Vieira Neto, Marcos Eduardo Valle and Wilder Lopes	Clifford Convolutional Neural Networks for Lymphoblast Image Classification
3:25 – 3:50 pm		Kristina Mullen, Avishek Mukherjee and Khandaker Rahman	Typing Gesture for One-time Authentication Using Smart Wearable
3:50 – 4:10 pm	<b>Networking Break / Poster Presentations</b>		
4:10 – 4:35 pm		Leo Dorst	Complementary Orientations in Geometric Algebras
4:35 – 5:10 pm	<b>Invited</b>	Alyn Rockwood	Interpolation and Design: Lessons and Opportunities from CAGD for Geometric Algebra
5:10 – 5:45 pm	<b>Invited</b>	Werner Benger	Illustrating Geometric Algebra and Differential Geometry in 5D Color Space
5:45 pm		Announcements	

**TUESDAY, OCTOBER 4, 2022**

DATE/TIME	EVENT	SPEAKER / AUTHORS	TALK TITLE
8:00 am – 4:00 pm	<b>Registration/ Information</b>		
8:30 – 9:30 am	<b>Keynote 2</b>	David Hestenes	Modeling and Computing with Geometric Algebra (GA)
9:30 – 9:55 am		Garret Sobczyk	Geometric Algebras of Compatible Null Vectors
9:55 – 10:20 am	<b>Networking Break/Poster Presentations</b>		
10:20 –10:55 am	<b>Invited</b>	Andrew Hamilton	Black Hole Flight Simulator
10:55 –11:30am	<b>Invited</b>	Sebastian Xambó-Descamps	Spinning Spinners with GA for One Century and Beyond
11:30 am – 11:55 am		Ekaterina Filimoshina and Dmitry Shirokov	On some Lie Groups in Degenerate Geometric Algebras
11:55 – 12:30 pm	<b>Invited</b>	G. Stacey Staples	Clifford Algebras & Zeons - Geometry to Combinatorics and Beyond
12:30 – 1:50 pm	<b>Networking Lunch (lunch provided)</b>		
1:50 – 2:15 pm		Sebastian Xambó-Descamps	Geometric Algebra Speaks Quantum Esperanto
2:15 – 2:40 pm		Andrew Hamilton	The Supergeometric Algebra as the Language of Physics
2:40 – 3:15 pm	<b>Invited</b>	Tristan Müller	Introduction to Quantum Computing
3:15 – 3:40 pm		Jaroslav Hrdina, Dietmar Hildenbrand, Rafael Alves, Ales Navrat, Christian Steinmetz, Carlile Lavor, Petr Vasik and Ivan Eryganov	Quantum Register Algebra: The Mathematical Language for Quantum Computing
3:40 – 4:00 pm	<b>Networking Break / Poster Presentations</b>		
4:00 – 4:25 pm		Jaroslav Hrdina, Rafael Alves, Ales Navrat, Petr Vasik, Dietmar Hildenbrand, Ivan Eryganov, Carlile Lavor and Christian Steinmetz	Quantum Register Algebra: Quantum Circuits
4:25-5:00 pm	<b>Invited</b>	Daniel Apon	The Initial NIST Post-Quantum Cryptography Standards, and What's Next?
5:00 – 5:25 pm		Eric Wieser and Joan Lasenby	Computing with the Universal Properties of the Clifford Algebra and the Even Subalgebra
5:25 pm		Announcements	
7:00 – 9:00 pm	<b>Award Banquet Dinner</b>		

## WEDNESDAY, OCTOBER 5, 2022

DATE/TIME	EVENT	SPEAKER / AUTHORS	TALK TITLE
8:30 – 9:20 am	<b>Roundtable</b>	Xabier Prado, Ahmad H. Eid, Alexander Arsenovic, Francisco G. Montoya, Q&A: Jorge Mira	Geometric Algebra applied to Power System Engineering
9:20 – 9:45 am		Francisco G. Montoya and Ahmad H. Eid	Geometric Procedure for Computing Differential Characteristics of Multi-phase Electrical Signals using Geometric Algebra
9:45 – 10:20 am	<b>Invited</b>	Wilder Lopes	Improving the Performance of Adaptive Filters and Neural Networks with Geometric Algebra
10:20 – 10:40 am	<b>Networking Break / Poster Presentations</b>		
10:40 – 11:05 am		Roman Byrtus and Stanislav Frolík	Notes on Forward Kinematics of Generalised Robotic Snakes Based on Compass Ruler Algebra
11:05 - 11:30 am		Julio Zamora, Edgar Macias and Leobardo Campos	Hand-eye calibration using Camera's IMU sensor in QGA
11:30 – 11:55 am		Timothy Havel	Plane-Bound Bivectors and Tetrahedra in the Conformal Model of Three-Dimensional Space
11:55 am – 12:20 pm		Vinicius Riter, Rafael Alves and Carlile Lavor	Geometric Algebra and Distance Matrices
12:20 – 1:40 pm	<b>Networking Lunch (lunch provided)</b>		
1:40 – 2:15 pm	<b>Invited</b>	Todd Ell	Closing the GA2P: Making geometric algebra a regular expression of aerospace engineering
2:15 – 2:40 pm		Yuhao Teng, Binghuang Pan, Jiyi Zhang, Wen Luo, Zhaoyuan Yu and Linwang Yuan	GA-MCNA: A Geometric Algebra Framework for Mission-Centric Network Analysis
2:40 – 3:05 pm		Melissa Mcleod Price and G Stacey Staples	Binary Linear Codes via Zeon and Sym-Clifford Algebras
3:05 – 3:25 pm	<b>Networking Break / Poster Presentations</b>		
3:25 – 4:00 pm	<b>Invited</b>	Joan Lasenby	Improving Matrix Methods with Geometric Algebra
4:00 – 4:25 pm		Alberto Pepe, Joan Lasenby and Pablo Chacon	Geometric Algebra Models of Proteins for Three-Dimensional Structure Prediction
4:25 – 4:50 pm		Eckhard Hitzer	Inner product of two oriented points in conformal geometric algebra
4:50 pm	<b>Closing ceremony</b>		

