The 27th Osaka City University International Academic Symposium
"Mathematical Science of Visualization, and Deepening of Symmetry and Moduli"

Online & Osaka City University (Building E of Faculty of Science, Lecture Room E408)

March 21st–26th, 2021

Program

March 21st, 2021

10:40-11:00   **Opening (Yoshihiro Ohnita)**

Chair   **Hideyuki Ishi**

11:00-12:00   Shun-ichi Amari (Online, RIKEN, Japan)
Geometry of Random Deep Neural Networks: Information Geometry Point of View

14:00-14:40   Hiroshi Matsuzoe (Online, Nagoya Institute of Technology, Japan)
Geometry of quasi statistical manifolds

15:15-15:20   **Opening of Public Lectures (Yoshihiro Ohnita)**

Chair   **Yoshihiro Ohnita**

15:20-16:20   Hideyuki Ishi (Osaka City University, Japan)
情報と幾何 (in Japanese)

16:40-17:40   Tatsuki Hayama (Senshu University, Japan)
数学 × 工芸：テンソル演算と西陣織 (in Japanese)

March 22nd, 2021

Chair   **Chihiro Matsuoka**

10:00-10:40   Jun Zhang (Online, University of Michigan Ann Arbor, USA)
Statistical Mirror Symmetry

11:00-11:40   Asuka Takatsu (Tokyo Metropolitan University, Japan)
Relaxation of optimal transport problem via Bregman divergence

Chair   **Venkatesh Raghavan**

14:00-15:00   Amit Kharat (Online, Dr. D.Y. Patil Medical College, India)
Using Artificial Intelligence in Medical Imaging to support the fight against infectious diseases - Real World Examples.

15:20-16:00   Sanefumi Moriyama (Online, Osaka City University, Japan)
M2-branes: Integrability and Weyl group

16:20-17:00	Tatsuyoshi Hamada (Online, Nihon University, Japan)
	MathLibre: Mathematical Software Environment
17:20-17:40	Thi Hang Do (Osaka City University, Japan)
	Land use/land cover classification using object and pixel based classification approaches with medium resolution satellite images: A case study in Lao Cai Providence, Vietnam
17:40-18:00	Pavithra Jayasinghe (Osaka City University, Japan)
	Evaluating spatio-temporal expansion patterns and urban growth models: A case study of Colombo City, Sri Lanka

March 23rd, 2021

Chair	**Martin Guest**
10:00-11:00	Feng Luo (Online, Rutgers University, USA)
	Discrete conformal geometry of polyhedral surfaces and its application
11:20-12:20	Na Lei (Online, Dalian Institute of Technology, China)
	Mesh Generation Based on Computational Conformal Geometry

| 14:00-14:10 | **Opening of Short Communications (Masashi Yasumoto)** |

Chair	**Masashi Yasumoto**
14:10-15:10	**Session 1**
	Luis Pedro Castellanos Moscoso (Osaka City University)
	Degenerations of orbits and left-invariant symplectic structures on Lie groups
	Hiroki Ito (Osaka University)
	A family of index polynomial invariants for virtual string links
	Hiroto Kusano (Osaka City University)
	Solution to the reflection equation in the symmetric tensor representation
	Naomichi Nakajima (Online, Hokkaido University)
	Information geometry from singularity theory viewpoint
15:40-16:40	**Session 2**
	Satoshi Ogawa (Osaka City University)
	CR-functions of suspension foliations and Dynamical systems
	Kento Okuda (Online, Kyushu University)
	Uniqueness of local minimizers for crystalline variational problems
	Mako Sato (Online, Osaka City University)
	Beltrami Fields with a non-constant proportionality factor
	Yuichiro Sato (Online, Tokyo Metropolitan University)
	Totally umbilical submanifolds in pseudo-Riemannian space forms

17:00-18:00	**Session 3**
	Ryo Takenaka (Osaka City University)
	Parafermionic bases of standard modules for twisted affine Lie algebras
	Yuta Taniguchi (Osaka City University)
	An f-twisted Alexander matrix for knot quandles
	Ryotaro Ueda (Osaka University)
	Quandle coloring quivers of virtual links using virtual quandles
	Jumpei Yasuda (Osaka University)
	Presentation of surface links using plat forms

March 24th, 2021

Chair	**Masashi Yasumoto**
13:30-14:15	**Session 4** (of Short Communications)
	Shin Hayashi (Online, AIST, JST PRESTO)
	Topological invariants and corner states for Hamiltonians on a lattice
	Naoki Kitazawa (Online, IMI Kyushu University)
	Geometric and constructive understanding of higher dimensional differentiable manifolds via explicit Morse functions and fold maps
	Masahiro Morimoto (OCAMI))
	On minimal PF submanifolds in Hilbert spaces with symmetries

Chair	**Seiichi Kamada**
14:30-15:30	Akio Kawauchi (Online, OCAMI, Japan)
	A spatial arc and the knotting probability
16:00-16:40	Ayaka Shimizu (Online, Gunma College, Japan)
	Region crossing change and Region Select game
17:00-17:40	Benjamin Bode (Online, ICMAT, Spain)
	Visualization of link fibrations and critical points

Chair	**Wayne Rossman**
18:00-19:00	Konrad Polthier (Online, FU Berlin, Germany)
	Branched Covering Surfaces - New Shapes, New Materials and New Processes
19:20-20:00	Gudrun Szewieczek (Online, TU Wien, Austria)
	Discrete flat fronts in hyperbolic space via discrete cyclic circle congruences

March 25th, 2021

Chair	**Akio Kawauchi**
14:30-15:30	Koya Shimokawa (Online, Saitama University, Japan)
	3-dimensional topology and poly-continuous pattern
16:00-16:40	Naoki Sakata (Online, Saitama University, Japan)
	3D nets and handlebody decompositions of 3-manifolds

Chair	**Franz Pedit**
17:00-18:00	Ulrich Pinkall (Online, TU Berlin, Germany)
	Computing Constrained Willmore Surfaces
18:20-19:00	Mason Pember (Online, Politecnico di Torino, Italy)
	Spherical curvature lines
19:20-20:00	Katrin Leschke (Online, University of Leicester, UK)
	Darboux transforms via a Sym-type formula

March 26th, 2021

Chair	**Takashi Sakai**
14:30-15:30	Hisashi Naito (Online, Nagoya University, Japan)
	Carbon Structures and a Discrete Surface Theory
16:00-16:40	Wai Yeung Lam (Online, BIMSA Tsinghua University, China)
	Circle patterns on surfaces with complex projective structures

Chair	**Miyuki Koiso**
17:00-17:40	Christian Müller (Online, TU Wien, Austria)
	Geometric structures motivated by architecture
18:00-18:40	Franz Pedit (Online, UMass Amherst, USA)
	Isometric Immersions via Variational Calculus
19:00-20:00	Helmut Pottmann (Online, KAUST, Saudi Arabia)
	Smoothness of polyhedral surfaces motivated by applications in computational design and fabrication