

Alan Schoen 100th birth anniversary

Gyroid is everywhere

Date November 19 - 22, 2024

Venue: November Hall, Kindai University, HigashiOsaka, Japan

Program

November 19 (Tue)

- 9:00 - 9:50 Registration
- 9:50 - 10:00 **Tomonari Dotera** (Kindai University)
Welcome remark, Introduction of Alan Schoen
- 10:00 - 10:10 **Itaru Matsumura** (President, Kindai University)
Opening address 1
X X (Toyota Physical and Chemical Research Institute)
Opening address 2

Tutorial lectures (Open lectures w/o registration)

- 10:10 - 11:00 **Randall Kamien** (University of Pennsylvania)
Materials Geometry
- 11:00 - 11:10 **Break**
- 11:10 - 12:00 **Stephen Hyde** (Sydney University & Australian National University)
Triply Periodic Minimal Surfaces
- 12:00 - 13:30 **Lunch**

Plenary lecture

- 13:30 - 14:10 **Myfanwy Evans** (University of Potsdam)
Gyroid as an organiser of entanglement

Invited lectures

- 14:10 - 14:40 **Jacob Kirkensgaard** (University of Copenhagen)
Exploring pattern formation on negatively curved surfaces via the hyperbolic plane
- 14:40 - 15:10 **Koya Shimokawa** (Ochanomizu University of Copenhagen)
Polycontinuous pattern and 3-dimensional topology

15:10 - 15:40	Coffee break
15:40 - 16:00	Hao Chen (ShanghaiTech University) <i>Recent mathematical progress on Triply Periodic Minimal Surfaces, and how physics inspired them</i>
16:00 - 16:20	Chern Chuang (University of Nevada, Las Vegas) <i>Square lattice representations of P, D, and G surfaces and their mixtures and generalizations</i>
16:20 - 16:40	Kanata Warisaya (The University of Tokyo) <i>Reconfigurable Periodic Surfaces Assembled from Strip Modules</i>
16:40 - 16:50	Break
16:50 - 17:10	Toshihiko Oka (Shizuoka University) <i>Investigating electron density of gyroid structures by X - ray diffraction</i>
17:10 - 17:30	Goran Ungar (Xi'an Jiaotong University) <i>Skeletal bicontinuous mesophases of bundled axial rod-like molecules</i>
17:30 - 17:50	Osamu Terasaki (ShanghaiTech University) <i>Where and how we have met and learnt from G-surface</i>
17:00 - 18:00	Move
18:00 - 19:00	Welcome reception

November 20 (Wed)

Plenary lecture

9:00 - 9:40 **Ulrich Wiesner** (Cornell)
Co-Continuous Gyroidal Hybrid Nanomaterials from Block Copolymer Self-Assembly

Invited lectures

9:40 - 10:10 **Rong-Ming Ho** (National Tsing Hua University)
Network Phases from Self-Assembly of High Interaction Parameter Block Copolymers and Chiral Block Copolymers

10:10 - 10:40 **An-Chang Shi** (McMaster University)
Stabilizing network phases of block copolymers

10:40 - 11:10 **Coffee break**

11:10 - 11:30 **Lu Han** (Tongji University)
Formation of Triply Periodic Hyperbolic Surface Structures via Block Copolymer Self-Assembly

11:30 - 11:50 **Weihua Li** (Fudan University)
Stabilize different continuous network phases by rationally designing block copolymers

11:50 - 12:10 **Atsushi Takano** (Nagoya University)
Novel Tricontinuous Microphase-Separated Structures formed from ABC Triblock Terpolymer Blends

12:00 - 13:30 **Lunch**

Invited lectures

13:30 - 14:00 **Xiangbing Zeng** (Sheffield)
How Do You Make a Gyroid Chiral?

14:00 - 14:30 **Takahiro Ichikawa** (Tokyo University of Agriculture and Technology)
Gyroid Minimal Surface as Proton Conduction Pathway

14:30 - 14:50 **Shoichi Kutsumizu** (Gifu University)
Control of $Ia\bar{3}d$ Gyroid phase formation in aryloyl-hydrazine-based molecules by using two chemical modifications, introducing the side group and slight non-symmetry into the core moiety

10:40 - 11:10 **Coffee break**

15:20-17:20 **Poster Session**

November 21 (Thur)

Plenary lecture

9:00 - 9:40 **Gregory Grason** (University of Massachusetts Amherst)
Gyroid Physics

Invited lectures

9:40 - 10:10 **Philipp Schönhöfer**
Gyroid Simulation

10:10 - 10:40 **Justin Llandro** (Sumitomo Chemical Co., Ltd.)
Magnetism and topology in self-assembled 3D gyroid nanostructures

10:40 - 11:10 **Coffee break**

11:10 - 11:30 **Jun-ichi FUKUDA** (Kyushu University)
Structural transformation of cholesteric blue phases revealed by continuum simulation and machine-learning-aided structural analysis

11:30 - 11:50 **Masahisa Tsuchiizu** (Nara Women's University)
Topological electronic states in microscopic gyroids

11:50 - 12:10 **Rie Suizu** (Nagoya University)
Coexistence of Collinear and Non-collinear Spin Texture in Antiferromagnetic Gyroidal MOFs

12:10 - **Excursion**
Lunchbox
Sumiyoshi Taisha Shrine
Yamamoto Noh Theater
Osaka Castle
Dinner (OSAKA GEIHINGAN)

November 22 (Fri)

Plenary lecture

9:00 - 9:40 **Matthias Saba** (Fribourg)
Gyroid Photonics – From Chiral Beamsplitters and Active Materials to Topological Physics and Bound States in the Continuum

Invited lectures

9:40 - 10:10 **Vinodkumar Saranathan** (Krea University)
Functional Morphology of Mesoscale Organismal Single Gyroids

10:10 - 10:40 **Łucja Kowalewska** (University of Warsaw)
Beyond the Ordinary: Diamond- and Gyroid-Shaped Membranes in Plant Plastids

10:40 - 11:10 **Coffee break**

11:10 - 11:30 **Annie Jessop** (Murdoch University)
Reflections from a developing butterfly Gyroid

11:30 - 11:50 **Shigeru Okamoto** (Nagoya Institute of Technology)
A Single Grain of OBDG in a Semi-dilute Solution - Photonic Crystal

11:50 - 12:50 **Lunch**

Invited lecture

12:50 - 13:20 **Kunio Awaga** (Nagoya University)
Rational Synthesis of Molecular Gyroids and their Structure-Derived Solid-State Properties

Discussion & Summary

13:20 - 14:00 **Gerd Schröder-Turk** (Murdoch University)

Closing remark

14:00 - 14:10 **Yushu Matsushita** (Toyota Physical and Chemical Research Institute)