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

Chair: Tomonari Dotera

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 revisited: surface complexes*
12:00 - 13:30	**Lunch**

Chair: Gerd Schröder-Turk

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) *Polycontinuous pattern and 3-dimensional topology*

15:10 - 15:40 **Coffee break**

Chair: Randall Kamien

15:40 - 16:00 **Hao Chen** (ShanghaiTech University)
Recent mathematical progress on Triply Periodic Minimal Surfaces, and how physics inspired them

16:00 - 16:20 **Chern Chuang** (University of Nevada, Las Vegas)
Square lattice representations of P, D, and G surfaces and their mixtures and generalizations

16:20 - 16:40 **Kanata Warisaya** (The University of Tokyo)
Reconfigurable Periodic Surfaces Assembled from Strip Modules

Chair: Stephen Hyde

16:40 - 16:50 **Break**

16:50 - 17:10 **Toshihiko Oka** (Shizuoka University)
Investigating electron density of gyroid structures by X - ray diffraction

17:10 - 17:30 **Goran Ungar** (Xi'an Jiaotong University)
Skeletal bicontinuous mesophases of bundled axial rod-like molecules

17:30 - 17:50 **Osamu Terasaki** (ShanghaiTech University)
Where and how we have met and learnt from G-surface

17:50 - 18:00 Move

18:00 - 19:00 **Welcome reception**
Reiko Schoen (Mrs. Schoen)
Yushu Matsushita (Toyota Physical and Chemical Research Institute)
Greeting & Toast

November 20 (Wed)

Chair: Yushu Matsushita

Plenary lecture

9:00 - 9:40 **Ulrich Wiesner** (Cornell University)
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**

Chair: Osamu Terasaki

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

12:10 - 13:30 **Lunch**

Chair: Goran Ungar

Invited lectures

13:30 - 14:00 **Xiangbing Zeng** (University of 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

14:50 - 15:20	**Coffee break**

15:20-17:20	**Poster Session** *Poster size: A0 (board width 900 mm)* *You can display your poster from November 19 to 22.*

November 21 (Thur)

Chair: Jacob Kirkensgaard

Plenary lecture

9:00 - 9:40 **Gregory Grason** (University of Massachusetts Amherst)
Fitting into and shifting symmetries of block copolymer cubic networks

Invited lectures

9:40 - 10:10 **Philipp Schönhöfer** (University of Michigan)
"Challenging" Steiner's formula: Pathways to stabilize the gyroid in colloidal self-assembly

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**

Chair: Kunio Awaga

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 GEIHINKAN)*
Randall Kamien (University of Pennsylvania)
Toast

November 22 (Fri)

Chair: Myfanwy Evans

Plenary lecture

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

Invited lectures

9:40 - 10:10 **Vinod Kumar Saranathan** (University of Tours)
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**

Chair: Matthias Saba

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**

Chair: Takahiro Ichikawa

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 **Stephen Hyde** (Sydney University & Australian National University)