

# Alan Schoen 100th birth anniversary

## Gyroid is everywhere

Date November 19 - 22, 2024

Venue: Kindai University, HigashiOsaka, Japan

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

## 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  $1a\bar{3}d$  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)