



Research Institute for Mathematical Sciences Kyoto University

RIMS Workshop: "Pattern formation and defects in biology and materials science"

Date October 8 – 11*, 2019
Venue Kansai Seminar House, Kyoto
Organizers Pierluigi Cesana, cesana@math.kyushu-u.ac.jp
Eduardo Elio Espejo, espejoe@uninorte.edu.co
Sponsor RIMS Research Institute for Mathematical Sciences Kyoto University

** check-in at the Seminar House starts in the afternoon of October 7th*

List of speakers

Marco Barchiesi	University of Trieste, IT
Lorenzo Cavallina	Tohoku University, JP
Pierluigi Cesana	Kyushu University, JP
Eduardo Elio Espejo	North University, CO
Kentaro Fujie	Tohoku University, JP
Sebastian Graiff-Zurita	Kyushu University, JP
Tomonari Inamura	Tokyo Institute of Technology, JP
Masato Kimura	Kanazawa University, JP
Georgy Kitavtsev	BCAM, ES
Shunsuke Kobayashi	Osaka University, JP
Patrick van Meurs	Kanazawa University, JP
Masaaki Mizukami	Tokyo University of Science, JP
Rhudaina Z. Mohammad	Kyoto University, JP
Hideki Murakawa	Ryukoku University, JP
Karel Svadlenka	Kyoto University, JP
Ryuichi Tarumi	Osaka University, JP
Tomomi Yokota	Tokyo University of Science, JP
Peicheng Zhu	Shanghai University, CN

Conference website

https://pierluigicesana.weebly.com/gasshuku_pdes.html

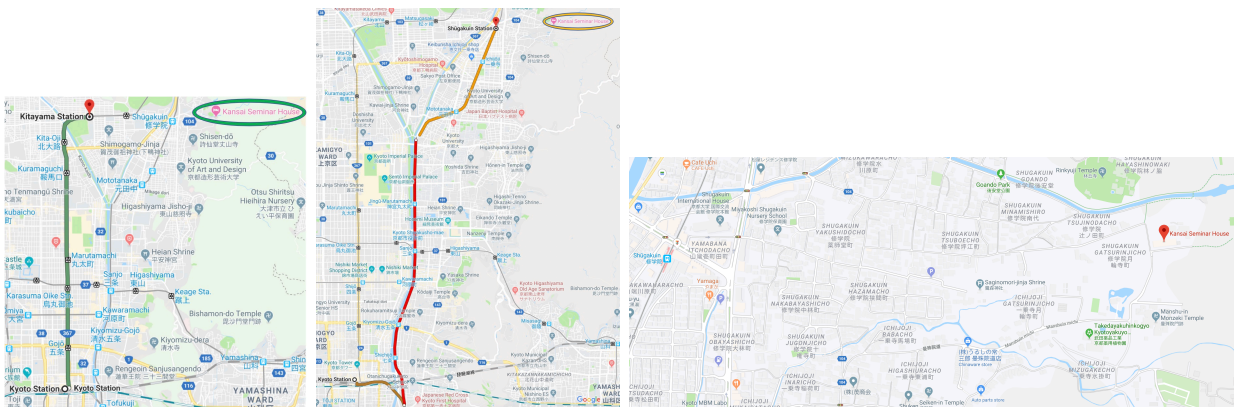
Directions- from Osaka's airports

- From **Itami Airport** the easiest way to get to Kyoto Station is by [bus](#). This takes approximately 1 hr. Buses run every 20 minutes and the cost for one ride is ¥1310. An alternative route is by [train](#). Take the Osaka Monorail and get off at Hotarugaike station (1 stop). Transfer to the Hankyu Takarazuka Line and get off at Juso Station (avoid going through Osaka/Umeda station if you are not familiar with transportation in JP). At Juso Station, take the Hankyu Kyoto Line and get off at Kyoto Station. The route by train should take around 1hr and the cost is around ¥1000. Then, continue reading below (Directions from Kyoto Station).
- From **Kansai International Airport (KIX)** the easiest way to get to Kyoto Station is by train ("Haruka" service). Ticket office is located on the first floor of the Terminal 1 building. One way takes about 80 minutes and the cost is ¥3170. Then, continue reading below.

Directions - from Kyoto Station

From Kyoto station, there are two possible routes.

- ([Easy](#)) From Kyoto Station, jump on a Karasuma Subway Line train and get off at Kitayama station (cost, ¥290; duration, about 15 minutes). From Kitayama station, take a taxi to the Kansai Seminar House. Simply saying "Kansai Seminar House" to the driver should be enough if you take a taxi at Kitayama station. A ride to the Seminar House should be of the order of ¥1500-2000.



- ([Scenic](#)) From Kyoto Station, take the Nara line and get off at Tofukuji Station (1 stop). From Tofukuji Station, take the Keihan Main Line and get off at Demachiyana Station (6 stops). From Demachiyana Station take the [Eizan Main Line](#) and get off at Shugakuin Station. The whole trip by train should take around 40 minutes and cost ¥620. From Shugakuin Station take a taxi to the Kansai Seminar House. Simply saying "Kansai Seminar House" to the driver should be enough if you take a taxi at Shugakuin station. A ride to the Seminar House should cost around ¥1000-1500.
- If you are taking a different route or need further assistance, contact the organizers at cesana@maths.kyushu-u.ac.jp



Monday, October 7th

Afternoon	check-in
18.30	Dinner

Tuesday, October 8th

8:00	Breakfast
8:50-9:00	Welcome of the organizers
9:00-10:00	Peicheng Zhu (Shanghai University) New Phase-Field Models for Phase Transitions with Applications to Materials Science
10:00-11:00	Kentaro Fujie (Tohoku University) Mathematical Analysis of a Kinetic Model of Pattern Formation with Density-suppressed Motilities
11:00-12:00	Eduardo Espejo (North University) Can the aggregation of macrophages occur when having a low density of tumor cells and vice-versa?
12:00	Lunch
14:00-15:00	Ryuichi Tarumi (Osaka University) Irreducible decomposition of strain gradient elastic constants and its application to lattice defect
15:00-16:00	Karel Svadlenka (Kyoto University) Numerical approach to deformation of layered structures
16:00-17:00	Shunsuke Kobayashi (Osaka University) Differential geometry of defective solids: modeling and numerical analysis
18:00	Dinner

Wednesday, October 9th

8:00	Breakfast
9:00-10:00	Tomonari Inamura (Tokyo Institute of Technology) Microstructures of martensite and kink resulting from incompatibility between deformations
10:00-11:00	Marco Barchiesi (University of Trieste) Minimization problems for the axisymmetric neo-Hookean energy
11:00-12:00	Masato Kimura (Kanazawa University) Two dimensional snow crystal growth model using generalized crystalline motion
12:00	Lunch
14:00-15:00	Georgy Kitavtsev (BCAM) Point defects in the theories of nematic liquid crystals and active gels
15:00-16:00	Rhudaina Zakaria Mohammad (Kyoto University) A level set-based approach for modeling tissue morphogenesis
16:00-17:00	Lorenzo Cavallina (Tohoku University) On a shape optimization problem for composite materials and its related overdetermined problem
18:00	Dinner



Thursday, October 10th

8:00	Breakfast
9:00-10:00	Tomomi Yokota (Tokyo University of Science) Boundedness and blow-up in a quasilinear degenerate chemotaxis system with flux limitation
10:00-11:00	Sebastian Graiff-Zurita (Kyushu University) Integrable discrete Euler's elastica: construction of an explicit expression for the discrete curvature
11:00-12:00	Masaaki Mizukami (Tokyo University of Science) On the relation between fully parabolic and parabolic-elliptic chemotaxis systems under smallness conditions for initial data
12:00	Lunch
Afternoon	Free
18:00	Dinner (BBQ)*

Friday, October 11th

8:00	Breakfast
9:00-10:00	Patrick van Meurs (Kanazawa University) Upscaling of dislocation dynamics including collisions
10:00-11:00	Pierluigi Cesana (Kyushu University) Mathematical ideas and models for disclinations
11:00-12:00	Hideki Murakawa (Ryukoku University) Mathematics of cell-cell adhesion
12:00	Lunch (take-away). End of the conference

**The BBQ will be held on Thursday regardless of weather conditions.*