

IEEE CAS Society, Shikoku Chapter

Report of Outreach Initiative 2021

Name: Takashi Shimamoto
(Chair, CASS Shikoku Chapter)

Date: January 6, 2022

1. Event name: IEEE CASS Shikoku Chapter YP and Student Members Meeting

2. Date: November 15, 2021

3. Place: Hybrid style

Community Plaza, Shikoku University
&
Online (Zoom)

4. Attendance: IEEE Members: 35, Guests: 15

5. Metrics to measure its success:

A. Number of young members joining the meeting.

target: 35, result: 41

B. Number of new members recruited for the meeting.

target: 15, result: 10

C. Number of talks given by young members.

target: 10, result: 13

6. Program:

Opening Speech

13:30-13:40 Yoshifumi Nishio (Tokushima University)

Part I: Presentation of Foreign Study/Research Experience

13:40-13:50 Naohide Hashimoto (M2, Tokushima University)

"Internship experience in Vietnam"

13:50-14:00 Ryosuke Shimizu (M1, Tokushima University)

"Presentation of overseas experience in Australia"

- 14:00-14:10 Hidehiro Sugioka (M2, Tokushima University)
"Experience of research presentation in China"
14:10-14:20 Yuji Yamauchi (M2, Tokushima University)
"IEEE CAS Student Workshop in Xi'an & SSJW"
14:20-14:30 Yoko Uwate (Tokushima University)
"International Conference Trip in Nishio Laboratory"

Invited Lecture

- 14:30-15:00 Prof. Takaya Yamazato (Nagoya University)
"Stochastic Resonance"

Panel Discussion

15:10-15:40

- Mr. Kenta Ago (Murata Manufacturing Co., Ltd.)
Mr. Seiya Kita (Murata Manufacturing Co., Ltd.)
Mr. Yuki Fujisawa (Optage)

Part II: Research Presentations by YP & Student Members

- 15:40-15:50 Masaki Saito (B4, Tokushima University)
"Simulation and Network Analysis of COVID-19 Infection with Social Distance by Multi Agent Simulation in School Environment"
15:50-16:00 Kiichi Yamashita (B4, Tokushima University)
"Study of Synchronization Phenomena in Complex Networks Considering Euclidean Distance Between Nodes"
16:00-16:10 Souhei Shima (M1, Tokushima University)
"Complex Network Analysis Using Synchronization Phenomena in Chaotic Circuits"
16:10-16:20 Kohei Yamamoto (M1, Tokushima University)
"Analysis of Associative Memory Performance Using Synchronization of Weakly Coupled Oscillators"
16:20-16:30 Kazuki Satokawa (M2, Tokushima University)
"A Study on Classification of Shiitake Mushrooms Using Convolutional Neural Network"

Closing speech

- 16:30-16:40 Yasuteru Hosokawa (Shikoku University)

7. Detail:

IEEE CAS Society Shikoku Chapter organized the IEEE CASS Shikoku Chapter YP and Student Members Meeting on November 15 at Community Plaza, Shikoku University, Japan. The same event was held from 2008 in order to give YP members and Student members in the CASS Shikoku Chapter an opportunity to communicate each other and to discuss their future.

This year, 30 CASS members and 15 guests attended the event. First, Prof. Nishio, the Vice President – Regional Activities and Membership of the CAS Society, welcomed all the participants and talked about the importance of the meeting.

In the first session, four graduate student members and one YP member introduced their international experiences. Mr. Hashimoto and Mr. Shimizu gave presentations about their abroad experiences. Mr. Sugioka and Mr. Yamauchi presented their experiences when they were attending at international workshops. Dr. Uwate introduced what she learned through her experience in abroad.

After a short break, Prof. Takaya Yamazato of Nagoya University delivered an invited talk "Stochastic Resonance". His talk gave young members an inspiration using noisy signals to enhance information transmission.

After his invited talk, a panel discussion with former Shikoku Chapter members was organized. They introduced their experiences during their student ages and suggested what the young student members should do in school.

After the panel, two undergraduate student members and three graduate student members introduced their research results. Their research areas were modeling of covid-19, complex networks, chaotic circuits, coupled oscillators, and deep learning. Finally, the discussions and Q&A session was very exciting.

This year, we have set up the three targets to measure the success of this event as described in the previous section. But, because we were a bit short to reach the targets by the one-day meeting, we added a couple of smaller meetings after the event. The result numbers in the metrics include those numbers. Anyway, the event successfully stimulated many young student members. We should work harder to recruit more young researchers including students and to encourage them by exploiting every opportunity, because we believe that young people are definitely the future of our society.

8. Pictures:



Ice Age

An ice age is a long period of reduction in the temperature of Earth's surface and atmosphere, resulting in the presence of expansion of continental and polar ice sheets and alpine glaciers. Earth's climate alternates between ice ages and interglacial periods, during which there are no glaciers on the planet. Earth is currently in the Quaternary glaciation. Individual pulses of cold climate within an ice age are termed glacial periods (or, alternately, glacial, glaciologic, glacial stages, stadials, stadies, or colloquially, ice ages), and intermittent warm periods within an ice age are called interglacials or interstadials.^[1]

Ice Age Temperature Changes

Periodic influence on climate

Periodic influence on climate

stochastic Resonance

https://en.wikipedia.org/wiki/Ice_age (2021/11/15)

Copyright: A. & Rahmstorf, S. Abrupt glacial climate changes due to interdecadal oscillations. *Science*, Physical Science Letters 346, 2007, 2007.

FIG. 3 (color). Schematics of the two glacial climate states described in Ghilardi and Rahmstorf (1). Between the stable "cold" or "interglacial" state (top) the unstable "warm" or "interstadial" state (bottom) exists. Colored arrows show the surface air temperature (SAT) response to the stochastic forcing. The interglacial state is schematically shown in light blue. Colored arrows show the reconstruction of Poller (1), presented in the simulation.

Our goal: replacing the linear system with simple nonlinear system

Good: Simple structure Low cost
Bad: Low resolution (quantization error cause) → approximation error

Shintaro Arai@O... 青木 将希 仲野 颯佑

中山晃典(岡山理... Hosokawa@Shik... 石川裕貴 杉岡英洋(久千才...)

結果

