

2023年 4月 18日

2023/04/18

Fellowship ID : BR220403

独立行政法人日本学術振興会理事長 殿
To: President, Japan Society for the Promotion of Science

研究活動報告書

Research Report

1. 受入研究者/ Host researcher

受入研究機関・部局・職
Name of Host Institution, Department and Title
東京理科大学・創域理工学部経営システム工学科・教授

受入研究者氏名
Host Researcher's Name
高嶋 隆太

2. 外国人再招へい研究者/ Fellow

所属研究機関・部局・職
Name of Institution, Department and Title
University of California Santa Cruz・Technology Management in Sustainability, Electrical and Computer Engineering, Environmental Studies・Professor

外国人再招へい研究者氏名
Fellow's Name
Yihsu Chen

3. 採用期間/ Fellowship Period

2023年 3月 18日 ~ 2023年 4月 4日

4. 研究課題/ Research Theme

Interactions of market power and energy policy: An market equilibrium approach

5. 研究活動報告/ Research Report

(1) 研究活動の概要/ Summary of Research Results

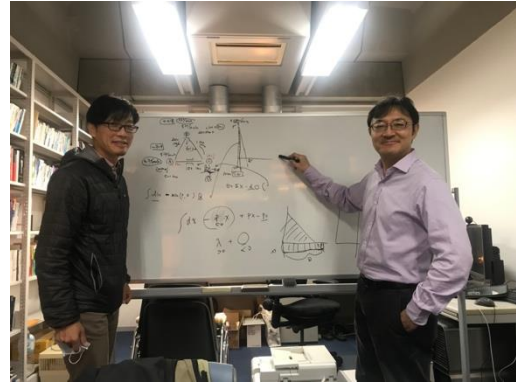
JSPS BRIDGE 220403 supported my trip to Japan in Spring 2023. This is a long anticipating trip, which was supposed to occur in August 2022 but was postponed due to the COVID situation. My trip was supported mainly by Professor Ryuta Takashima from the Tokyo University of Science (TUS). However, Professor Makoto Tanaka from the National Graduate Institute for Policy Studies (GRIPS) was highly appreciated of his hospitality to also host me physically in his institution by providing me an office space. My daily activities were taken place and alternated between two institutions: TUS and GRIPS.

The main activities concentrated on i) developing a new proposal prosumers-related work and ii) revising two papers: [1] & [2]. [1] studies the optimal retail electricity tariff design in presence of prosumers who own roof-top solar panels. The issues are practically relevant and currently subject to contentious policy debates in California [3][4]. Our findings are broadly aligned with the recent proposals by three investor-own utilities in California. The second paper, [2], a joint work also with one of Ph.D. students advised by Professors Takashima and Tanaka studies incentives of consumers to invest in solar panel coupled with energy storage when facing different retail tariffs. Both papers were successfully submitted, which we are hopeful for favorable results in next few weeks. The findings from these two papers can be generalized to Japan and other countries, at which the energy systems have significant presence of distributed solar panels.

(注) 採用期間終了後 3 ヶ月以内に提出。
(Note) Submit the form within 3 months after the expiration of fellowship.

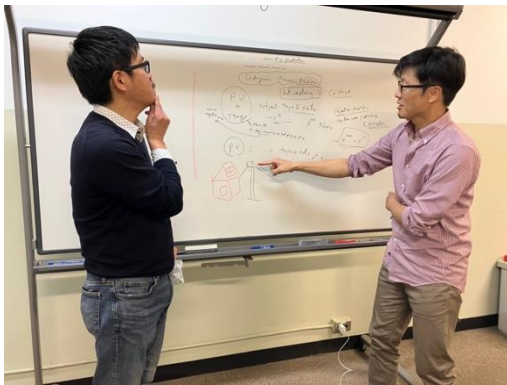


(a) Picture taken in front of the main entrance of the GRIPS



(b) Discussing research with Professor Tanaka (right) from the GRIPS

The fellowship also included an interview by Mr. Kazuyoshi Izumi (picture (d)), who is a coordinator of International Affairs Section at TUS. This was a great opportunity for me to express my gratitude to the JSPS to support the trip.



(c) Discussing research with Professor Takashima (left) from the TUS at his office



(d) Interviewed with Ms. Izumi (right) from the TUS

(2) 研究キーワード/ Keywords

Electricity retail tariff, prosumers, utility death-spiral, energy equity

(3) 主な研究発表 (雑誌論文、学会、集会、知的財産権等/ Main Research Publications

[1] Chen, Y., A. L. Liu, M. Tanaka, R. Takashima (2023) Optimal Retail Tariff Design with Prosumers: Pursuing Equity at the Expenses of Economic Efficiencies?

[2] Ito, K., M. Tanaka, Y. Chen, and R. Takashima (2023) Price-Responsive Prosumers in Transmission-Constrained Power Markets: Pricing, Investment, and Social Welfare

(4) その他/ Remarks

The two references highlight the importance of our work

[3] <https://ktla.com/news/local-news/california-power-companies-roll-out-fixed-rate-bill-proposal/>

[4] <https://energyathaas.wordpress.com/2023/04/17/whos-afraid-of-retail-electricity-rate-reform/>

受入研究機関事務担当者記入/ Filled in by Host Institution

部署・氏名	学務部国際支援課・山田奈津子	電話番号	03-5228-8726
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※ 部局名等の名称含め、内容に誤りが無いか必ずご確認ください。

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