

2023年 9月21日

YYYY/MM/DD

Fellowship ID : BR230402

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 早稲田大学 理工学術院 教授

受入研究者氏名
Host Researcher's Name 丸野 健一

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 Texas Rio Grande Valley, Mathematics, Professor

外国人再招へい研究者氏名
Fellow's Name Baofeng Feng

3. 採用期間/ Fellowship Period

2023年7月28日 ~ 2023年8月26日

4. 研究課題/ Research Theme

Integrable discretization of soliton equations

5. 研究活動報告/ Research Report

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

During my visit to Japan, I worked on joint research projects with Prof. Kenichi Maruno at Waseda University. We discussed (1) Fully integrable discretization of the complex short pulse equation; (2) Integrable discretization of the massive Thirring model; (3) Possible integrable discretization of a two-component Hunter-Saxton equation. We obtained the final results for (1), hopefully we can finish the paper soon. We have found the discrete analogue of bilinear equations for the massive Thirring model, but we have difficulty in realizing the complex conjugate condition. During my visit to Japan, I organized a minisymposium and gave a talk at ICIAM2023 which was held at Waseda University. I also visited Prof. Kouichi Toda at Toyama Prefecture University from Aug. 1 to Aug. 10 and Prof. Shao-Liang Zhang at Nagoya University from Aug. 10 to Aug. 19. With Prof. Toda, we discussed the solutions to the Yang-Baxter equation. With Prof. Zhang, we discussed the difficulty in simulating the rogue waves and how to solve the sparse large scale linear system more efficiently. During my stay in Nagoya, I also met Prof. Shin-itiro Goto at Chubu University and had a short discussion. During ICIAM 2023, I met Prof. Taketomo Mitsui, Prof. Yusuke Doi and Prof. Yoshimura. Prof. Doi was my host professor for my previous two JSPS fellowships.

(2) 研究キーワード/ Keywords

Discrete integrable systems; complex short pulse equation; massive Thirring model; bilinear method; rogue waves

(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.

(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) Resonant breather and rogue wave solutions to a coupled Sasa-Satsuma equation, 10th International Congress on Industrial and Applied Mathematics (ICIAM), Tokyo, Japan, August 20-25, 2023.

(4) その他/ Remarks

None

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

部署・氏名	早稲田大学国際部国際課 増尾はづき	電話番号	03-6380-2874
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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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