(All texts except numerical formula should be typed Century 10.5 pt, Gothic in project title and section name, in singles space and one column. Top, bottom, left, right margins are 30 mm. Please submit the manuscript after deleting the red colored texts in this template.)

|  |  |
| --- | --- |
| Project code | J23I099 |
| Classification | General collaborative research |
| Subject area | Environment and energy |
| Research period | April 2023 ~ March 2024 |
| Project status | 1st year |

(Project code, etc. are described in the request mail.)

Type the Project Title Here in English (Initial Capital)

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†Applicant, ††IFS or non-IFS responsible member

1. Purpose of the project
2. Details of program implement

(Details about collaborative research at the IFS should be mentioned in this section. In the case of Conferential Collaborative Research Project, outlines, date and scale of a conference should be mentioned here.)



Figure 1: Comparison of distributions of wall shear stress on the central cross-section of a curved pipe at four time steps.

1. Achievements

 (Achievements level for “expected result (which is stated application form)” should be mentioned in this section.)

1. Summaries and future plans

Table 1 : Physical properties of air

|  |  |  |  |
| --- | --- | --- | --- |
| *T* [oC] | ** [kg/m3] | *cp* [J/(kg·K)] | ** [Pa·s] |
|  |  | ×103 | ×10-5 |
|  0 | x.xxxx | x.xxx | x.xxx |
|  10 | x.xxxx | x.xxx | x.xxx |
|  27 | 1.1763 | 1.007 | 1.862 |

1. Research results Research results published from April 2023 to March 2024. If not applicable, please write “Not applicable”.

Please draw a solid underline to the author belonging to the institute in Japan except for IFS, and draw a double underline to the author belonging to the overseas institute. Here the overseas institute means overseas institutes seen from the Japan side. (Countries other than Japan).

1. Journal (included international conference with peer review and tutorial paper)

[No.] Authors name: Title, *Journal name*, a volume / an issue (year), pages.

[1] T. Tokyo, H. Ryutai, H. London: Fluid Science, *J. Phys. Soc. Jpn*, 77 (2023), pp. 100-107, doi: [10.7566/JPSJ.77.999999](https://doi.org/10.7566/JPSJ.00).

[2] T. Tokyo, H. Ryutai, H. London: Computational Analysis for Fluid Science,

*Proceedings of Fluid Science Conference 2023*, Sendai, (2023), pp. 101-106.

[3] T. Tohoku: DNS for Fluid Science, *Physics of Fluids*, Vol. 26, No. 3, (2023), 071333 (8 pages), doi: 10.1063/1.9999999.

1. International and domestic conferences, meeting, oral presentation etc. (included international conference without peer review)

[No.] Authors name: Title, *Conference proceedings name*, (year), pages.

[4] T. Tokyo, H. Ryutai: Implementation of Software Library for Flow Analysis, *Proceedings of the* *Twenty-third International Symposium on Advanced Fluid Information,* Sendai, (2023), CRF-40, pp. 80-81.

[5] T. Tokyo, H. Ryutai, H. Nagare: Three Dimensional Analysis for Flow, *The tenth Conference on Nagare*, (2023), pp. 100-101.

1. Patent, award, press release etc. (patent, award, press release, note should be listed here if applicable)

(Patent) Invention, inventor, date of application and approval, apply / approval.

“Invention of flow analysis device”, Hanako Ryutai, Hiroshi Nagareboshi, February 1, 2024, apply. (Please omit items if publication is not appropriate.)

(Award) Award, presentation titles, name or group, date of awarded, organizer of award.

Best Presentation Award, “Development of nagare analysis”, Hiroshi Nagareboshi, July 1, 2023, Nagare society.

(Press release) Name of press, title, date.

Tohoku Newspaper, “Development of a new analytical method for NAGARE”, August 1, 2023. (Please upload the PDF file of the article in the “Other materials” at application web site.)