

Fellowship ID : BR200201

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

北海道大学・大学院工学研究院・准教授

受入研究者氏名

Host Researcher's Name

Yuji Tasaka (田坂裕司)

## 2. 外国人招へい研究者/ Fellow

所属研究機関・部局・職

Name of Institution, Department and Title

Arts et Métiers ParisTech - CNRS Researcher

外国人招へい研究者氏名

Fellow's Name

Jorge Peixinho

## 3. 採用期間/ Fellowship Period

2022年 9月 25日 ~ 2022年 10月 14日

## 4. 研究課題/ Research Theme

Flow transition to turbulence of perturbed pipe flow (摂動を受ける管内流れの遷移)

## 5. 研究活動報告/ Research Report

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

Flow transition turbulence of pipe flows periodically perturbed by a synthetic jet actuator was investigated experimentally by flow visualization on a constant-mass-flux pipe flow facility in Hokkaido University. A regime diagram of the transition was summarized with the parameters of the wall jet, e.g. the frequency, the amplitude of perturbation, as a function of the Reynolds number (the dimensionless flow rate). The joint experiments conducted during the stay lead to a data base of movies and photographs, which help to understand the decay and growth of periodic disturbance in the pipe. Improvement of the disturbance mechanism will help control the flow regimes (laminar or turbulent) efficiently.

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

A manuscript summarizing the results is in progress for publication. Photographs of the flow visualization have been submitted to a photo contest.

## (3) その他/ Remarks

During the stay, two presentations were given and numerous interactions with the professors and students of the department concerning research on polymer solutions.

(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.

※ 様式1に記載された情報を元に確認しますので、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。