


## 工系3学院学生国際交流基金プログラム

### 帰国報告書

派遣者氏名: 冉 子欣	
所属・研究室・学年:工学院 機械系 末包哲也研究室 修士2年	
派遣先大学・専攻: 南洋理工大学, School of Mechanical & Aerospace Engineering	
受入研究室・教員名: Zhou Yufeng	
派遣期間:平成 30 年 9 月 9 日 ~ 平成 30 年 12 月 9 日	
申請カテゴリー: <input type="checkbox"/> (C1)SERP <input checked="" type="checkbox"/> (C2)AOTULE <input type="checkbox"/> (C3-a)部局間協定校 <input type="checkbox"/> (C3-b)全学協定校 <input type="checkbox"/> (C4)その他	
研究(プロジェクト)題目: Cleaning oil-contaminated sand using microbubbles in Hele-shaw cell	

- A) 帰国後1か月以内に工系国際連携室宛 (ko.intl@jim.titech.ac.jp) にMS Wordファイルにて提出ください。
- B) SERP・AOTULEで派遣された場合は、受入教員の評価書も添付して下さい。
- C) この表紙を含まず、ページ数は2~4ページ、ファイルサイズは3MB以内としてください。
- D) 研究室や宿舎内の様子の写真、図表、イラスト、滞在中のその他の写真などは挿入可です。ただし、それらを掲載する際には簡単な説明を加えて下さい。
- E) 提出された報告書の2ページ目以降を工系のホームページに掲載いたします。また、別途、学内広報誌「東工大クロニクル」の執筆をお願いすることがあります。

#### 報告書必須記載事項

1. 派遣大学の概要(所在地、創立、規模など)
2. 留学準備など
3. 所属研究室での研究概要とその経過や成果、課題など
4. 所属研究室内外の活動・体験(日常生活・余暇に行った事など)
5. 留学先での住居(寮、ホームステイ等)、申し込み方法、ルームメイトなど
6. 留学費用(渡航費、生活費、住居費、保険料)など
7. 今回の留学から得られたもの、後輩へのメッセージ、感想、意見、要望
8. その他 \*任意  
(留学先で困ったこと/帰国後の進路(就職・進学・長期留学))

東京工業大学 工系3学院学生国際交流基金  
帰国報告書

派遣年月:平成30年9月~12月

氏 名:冉 子欣

所 属:工学院機械系 エネルギーコース

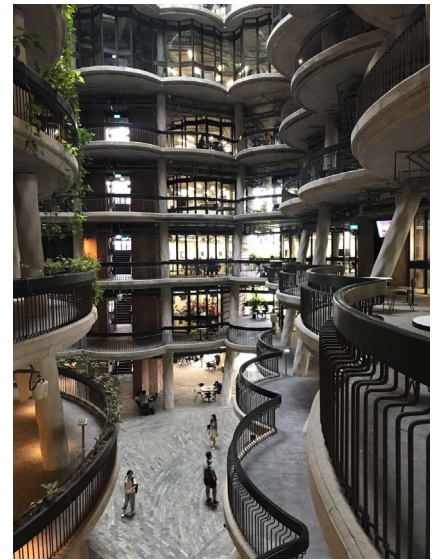
派 遣 先:南洋理工大学

(次ページ以降に記入してください。)

1. 派遣大学の概要(所在地、創立、規模など)

Nanyang Technological University is located in the southwest of Singapore and covers an area of 200 hectares, which is often listed among the top 10 most beautiful university campuses in the world. Meanwhile, NTU is a comprehensive university where both Business School and Engineering School achieved high rank among the world university.

There are four large colleges, which consist of 12 School. The Faculty of Engineering, consisting of six schools, focuses on innovation in technology and is internationally renowned. Besides, NTU Engineering Collage is one of the largest engineering collage in the world.



2. 留学準備など

I chose to intensify my English as the preparation before application so I took TOEIC test once again. At the same time, by browsing the poster and attending the exchange introduction event, various intelligence could be collected and selected. After deciding the program and target university, I spent about 3 weeks to seek for the related lab and sent email to inquire about exchange and consult the research theme after reading the Professor's paper.

The visa application period costed about one month. Before Departure, I contacted a homestay off-campus because there was no vacancy of on-campus dormitory.

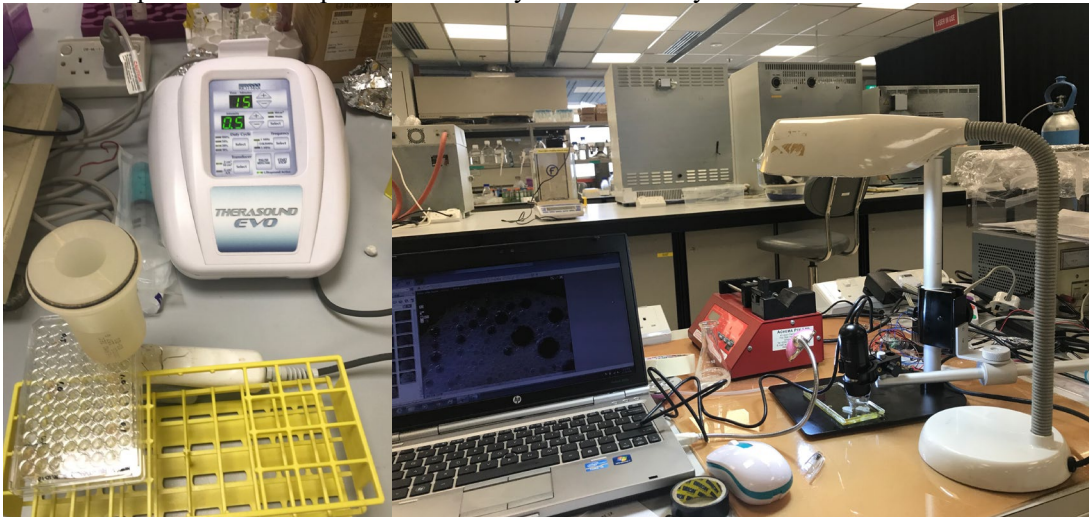
3. 所属研究室での研究概要とその経過や成果、課題など

I joined in Prof. Zhou yufeng's lab, belonging to School of Mechanical & Aerospace. He focuses on ultrasound research in biological field. Different from Tokyo Tech, in their case the research asks for teamwork. As a results, I joined this team during the exchange period and did the cell experiments with ultrasound therapy.

During those days, I did experiment about LIPUS (Low Intensity Pules Ultrasound) Treatment on the Human Umbilical Endothelial Cells (left photo). LIPUS has gained much attention as a potential adjunctive therapy for accelerating fresh fracture healing and the experiment is taken on acellular level. There are 7 sets holes including two control cases and 3 different ultrasound intensities. In the beginning, 5 holes was treated at the first day and cultured in the incubator (37.2°C). Among them, 2 holes would be treated every three days. Every day 200 cell photos were taken by microscope and then the cell growth would be observed, which takes about 4 to 5hours one time and lasted about two weeks. Furthermore, presentation was taken to report the Cell growth status every Monday morning. Finally, I checked all the graphs and then make a summary of LIPUS Treatment Experiment on the Monday group meeting to professor and lab members.

After this experiment, I re-conducted some experiment of foam flooding with smaller device and high-speed camera to improve the photo quality (right photo). The most difficult point was to rebuild those devices I used in Tokyo Tech, which took about 2 weeks and finally worked!

The time I spent in NTU helps me advance my research ability.



4. 所属研究室内外の活動・体験(日常生活・余暇に行った事など)

Singapore is one of the most beautiful I have ever seen before. It is one of the important financial, service and shipping centres in Asia. The whole city has a remarkable effect on greening and cleaning, so it has the reputation of a garden city. On the weekend I usually hang out in this city to find delicious food and the following photo is the most famous night view *Marine Bay Sand*.



5. 留学先での住居(寮、ホームステイ等)、申し込み方法、ルームメイトなど

I lived in the off-campus Chinese homestay that I contacted on the rent house website because there is no vacancy of dormitory. The room is the same as the one I live in Suzu House, including air condition and all the furniture. There is gym and swimming pool on the first floor.

6. 留学費用(渡航費、生活費、住居費、保険料)など

The flight ticket costs 130 thousand Yen and my rent fees is 700 SG Dollar every month including the water and electricity. Bus fees is 60 SG Dollar. The insurance fee takes about 4 thousand Yen.

7. 今回の留学から得られたもの、後輩へのメッセージ、感想、意見、要望

Singapore is a multicultural ethnic society and one of the most international countries in the world. You can make friends and experience the various culture deeply by this period. I felt nervous when I just arrived at Singapore because there are many people with different race and culture, which is an unprecedented experience for me, thus, I was afraid that if I can get along well with the surrounding. But soon I got used to this circumstances. My lab members come from Thailand and India who assisted me a lot in both research and live.

Not only improved my English, but also help me re-recognize the fun of research. This exchange is a pretty rare experience, leaving me an indelible impression. It brings me a broader perspective and the ways to overcome difficulties.

