



**HAL**  
open science

## Clean room engineers' exchanges: a win/win international collaboration

David Bourrier, Ayako Mizushima, Naonobu Shimamoto, Etsuko Ota, Hugues Granier, Yoshio Mita

► **To cite this version:**

David Bourrier, Ayako Mizushima, Naonobu Shimamoto, Etsuko Ota, Hugues Granier, et al.. Clean room engineers' exchanges: a win/win international collaboration. ENRIS, May 2023, Paris, Saclay, France. hal-04476508

**HAL Id: hal-04476508**

**<https://laas.hal.science/hal-04476508v1>**

Submitted on 25 Feb 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## Clean room engineers' exchanges: a win/win international collaboration

David Bourrier<sup>1\*</sup>, Ayako Mizushima<sup>2</sup>, Naonobu Shimamoto<sup>2</sup>, Etsuko Ota<sup>2</sup>,  
Hugues Granier<sup>1</sup> and Yoshio Mita<sup>2</sup>

<sup>1</sup> LAAS-CNRS, Université de Toulouse, CNRS, Toulouse, France

<sup>2</sup> The University of Tokyo; 7-3-1 Hongo, Bunkyo-city, Tokyo, Japan

Type of Contribution: Poster

### Abstract:

In the world of research, international collaborations between researchers are common, well-structured, and benefit from a lot of funding. Exchanges between engineers/technical staff in general are rarer, it is difficult to find dedicated funding

Through the opportunity offered to two engineers of LAAS-CNRS by Professor Mita of the University of Tokyo, supported by MEXT X-nics UTokyo Agile-X project, we will show that these exchanges are an opportunity for real scientific and technical collaborations; and that as such they deserve to be developed.

The exchange focused on two aspects. The training and transfer of skills by the LAAS-CNRS in the field of electrolytic deposition, on equivalent equipment of the Yamamoto-MS company for the engineers of the Mita Lab, d.lab Platform Device Research Division. The discovery and the learning from the Mita Lab of a new technology of conformal seed layer deposition by supercritical CO<sub>2</sub><sup>[1]</sup> deposition to study its feasibility and its transfer to the LAAS.

We will present the very good preliminary results obtained in only 15 days as well as all the benefits brought by this exchange; as well on the technological, scientific and humanly. They will benefit the whole community of the two laboratories and will allow to accelerate new scientific results.

These international exchanges allow us to confront and enrich different and complementary visions of how to implement technologies. Which is all the more enriching and motivating for the evolution of ways of working and exchanging. We hope that our presentation will create other opportunities, and show the real interest for our supervisory bodies to organize this type of opportunities beneficial to the whole scientific and technological community.

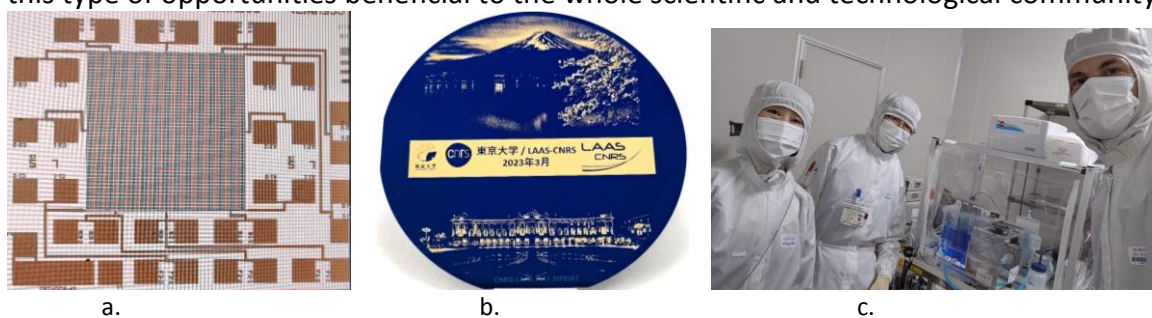


Fig. 1. a. 0.5  $\mu\text{m}$  of copper electroplated on chip b. wafer Si<sub>3</sub>N<sub>4</sub> 80 nm + Au 100nm c. Japanese-French electroplating Team

### References:

[1] Naoto Usamil, Etsuko Ota, A. Higo, T. Momose, Y. Mita, IEEE 32<sup>nd</sup> International Conference on Microelectronic Test Structures (ICMTS) 2019, Kitakyushu, Japan.

**Corresponding author:** Bourrier David ([bourrier@laas.fr](mailto:bourrier@laas.fr)) LAAS-CNRS 7 avenue Colonel Roche 31077 Toulouse

**Acknowledgments:** This work was supported by MEXT Initiative to Establish Next-generation Novel Integrated Circuits Centers (X-NICS) Grant Number JPJ011438.

This work was supported by LAAS-CNRS micro and nanotechnologies platform, a member of the Renatech french national network