Masanori HAYASE

Professor, Dr. Eng.
Department of Mechanical and Aerospace Engineering
Faculty of Science and Technology
Tokyo University of Science
2641 Yamazaki, Noda-shi, Chiba-ken 278-8510, JAPAN
mhayase@rs.tus.ac.jp
Tel: +81-4-7122-1375

Current Research Interests:

Metallization for Integrated Circuits: I investigate electroplating and electroless plating techniques for microelectronics. My focus lies in understanding the role of additives in plating solutions.

Miniature Fuel Cells: Fuel cells offer high energy conversion efficiency regardless of scale. Leveraging MEMS techniques, I pursue the development of compact fuel cells.

Circulating Tumor Cell Enrichment: Circulating tumor cells, typically larger and stiffer than blood cells, serve as key biomarkers for cancer diagnosis and monitoring. I design microfluidic systems capable of selectively isolating these cells based on their biomechanical properties.

Career and Education:

2013 Professor,	Tokyo University of Science
2008 Associate Professor,	Tokyo University of Science
2005 Lecturer,	Tokyo University of Science
1997 Research Associate,	Tokyo Institute of Technology (Institute of Science, Tokyo)
1997 Doctor of Engineering,	Tokyo Institute of Technology (Institute of Science, Tokyo)
1992 Bachelor of Engineering,	Tokyo Institute of Technology (Institute of Science, Tokyo)

Scopus stats:

Documents: 108 Citations: 959 h-index: 17

Selected Works:

- Ida S., Takagishi M., Nakashima M., Hayase M., "Through-chip porous layer fabrication by plasma etching with protective film deposition." *Journal of Vacuum Science & Technology B* 43.3 (2025).
- Akita T., Otsuka Y., Hayase M., "Microfluidic device for in situ observation of bottom-up copper electrodeposition in a TSV-Like structure." *Journal of The Electrochemical Society* 167.16 (2020): 162515.
- Okano H., Konishi T., Suzuki T., Ariyasu S., Aoki S., Abe R., Hayase M., "Enrichment of

circulating tumor cells in tumor-bearing mouse blood by a deterministic lateral displacement microfluidic device." *Biomedical microdevices* 17.3 (2015): 59.