

Name: **Dr. MST SHAMSUN NAHAR** (ナハ-ル モサマトサムスン美和)

Nationality: **Japanese**

Institution: **Eurofins Earth Techno (Environmental Testing)**, Toyama, Japan

Activities with the University of Toyama (UT)

2026-2015: Industrial research training of UT students in Eurofins Laboratory:

Helped and taught Environmental Analysis Methods, and introduced the latest scientific machine to UT students in the Eurofins company laboratory, Toyama, especially to compare the academic and Japanese Industrial Standards (JIS) analysis method. (Fukute, K, M.S. Nahar, Marumo, K., Development of contaminated soil reference materials for XRF analysis of tunnel work. (第 52 回 X線分析討論会 2016/10/26).

2023: International Exchange with UT (Seminars in Bangladesh):

As a liaison professor, I organized seminars in four Universities in Bangladesh (1. University of Rajshahi, 2. Rajshahi University of Engineering & Technology, 3. Jahangirnagar University, 4. American International University) in 2023. Several daily newspapers in Bangladesh, highlighted the UT and Prof. Jing's short visit, and the purpose of the trip.

2022 (1st Liaison Professor Assembly): Participated in the 1st Liaison Professor assembly at the University of Toyama (24th Nov 2022).

My latest co-authored papers with UT researchers

I am continuing research training and supervising master's and PhD students from the UT, and providing instruction, reviewing, and editing papers for international journal publication.

2026: Z. Alifia, J. Zhang, M.J. Haryanto, **M.S. Nahar**, S. Kagaya, *Talanta*. A Versatile Solid-Phase Extraction Method Using InertSep ME-2 for Simultaneous Analysis of Covering Medium to Heavy Mass Trace Elements in Diverse Water Matrices. <https://doi.org/10.1016/j.talanta.2026.129694>.

2024: J. Zhang S. Kagaya, K. Horikawa, **M.S. Nahar**, Preconcentration strategies for trace metals including REEs in seawater and porewater by employing commercial chelating resin - A review, M.J. Haryanto, *Microchemical Journal*, 206 (2024) 111526, *Talanta*.

2026: A. Sana, J. Zhang, **M.S. Nahar**, H. Katsuda, Manuscript is ready for submission: Post-Seismic Intensification of Submarine Groundwater-Derived Carbon and Nutrient Fluxes in Toyama Bay, Japan.

2026: M. T. Khatun, J. Zhang, **M.S. Nahar**, Manuscript is ready for submission: Intrusion, water-rock interactions, and anthropogenic input of tracer that impacted geochemical factors in coastal groundwater of the south-central Bay of Bengal, Bangladesh.

2024: **M.S. Nahar** and J. Zhang, *JPGU [AHW18-14]*, The current state of heavy metals-at the sediment-water interface of three coastal zones from the Bay of Bengal, the northeastern part of the Indian Ocean.

2023: **M.S. Nahar** and J. Zhang, JPGU, Geotracers and geophysical studies of surface sediment along the Bay of Bengal Coast in Bangladesh,

2023: M. T. Khatun, J. Zhang, **M.S. Nahar**, 日本地下水学会, Measurement of heavy metals in coastal groundwater of Kuakata, Bangladesh, 2023年11月17日.

Most of my popular, cited publications and scientific activities with UT Professors

M.S. Nahar, J. Zhang, Recovery of trace metal isotopes in seawater samples using multifunctional Neem (*Azadirachta indica*) biosorbent: A comparison with monofunctional NOBIAS–chelate–PA1 resin, *ACS Sustainable Chem. Eng.* 1(5), 488–495. 2013.

M.S. Nahar, K. Hasegawa, S. Kagaya, S. Kuroda, Adsorption and aggregation of iron-hydroxy complexes during the photodegradation of phenol using the iron-added-TiO₂ combined system, *J. Hazard. Mater* 162, 351–355, Feb 2009.

M.S. Nahar, K. Hasegawa, S. Kagaya, Photocatalytic degradation of phenol by visible light-responsive iron-doped TiO₂ and spontaneous sedimentation of the TiO₂ particles. *Chemosphere*, Vol. 65, pp. 1976-1982, June 2006.

M.S. Nahar, K. Hasegawa, S. Kagaya, Comparative assessment of the efficiency of Fe-doped TiO₂ prepared by two doping methods and photocatalytic degradation of phenol in domestic water suspensions, *IOP Sci. Technol. Adv. Mater.* 8, 286-291, 2007.

M.S. Nahar, The Use of $\delta^{18}\text{O}$ as an Indicator of Vanadium Movement in a Dormant Stratovolcano Region, *Toxicol. Environ. Chem*, 99, 5-6, 735-752, 2017.

M.S. Nahar, An introduction to the new degradation of polyvinyl chloride (PVC) shower hose. *Plastics Rubber and Composites*, 46, 5, 212-222, 2017.

- M.S. Nahar, et al**, Geochemical Color Maps of the Dhaka Water, Bangladesh-New Map Presentations for Toxic Metals and Isotopes. *Journal of Geoscience and Environment Protection*, 5, 134-151, 2017.
- M.S. Nahar**, J. Zhang, A. Ueda and Y. Fujishiro, Severe Water Problem Investigation in Urban Areas of a Developing Country: the Case of Dhaka, Bangladesh, *Environ Geochem Health*. 36(6):1079-94 2014.
- M.S. Nahar**, J. Zhang, Impact of natural water chemistry on public drinking water in Japan, *Springer, Environ. Earth Sci.* 69 (1), 127-140, 2012.
- M.S. Nahar**, J. Zhang, Assessment of sources variation in potable water quality including organic, inorganic and trace metals, *Environ. Geochem. Health*, 34, 141-150, 2012.
- M.S. Nahar**, J. Zhang, Effects of electrolyte, deposition current density and temperature on the physicochemical properties of synthesized conducting polyaniline. *Polym.- Plast. Technol. Eng.* 51(14), 1416-1423, 2012.
- M.S. Nahar**, J. Zhang, Concentration and distribution of organic and inorganic water pollutants in Eastern Shizuoka, Japan, *Toxicol Environ Chem* 2011, 93 (10), 1946-1955.
- M.S. Nahar**, J. Zhang, Analysis of damaged silicon rubber hose, *American J Anal Chem*, 2, 363-370, 2011.
- M.S. Nahar**, J. Zhang, Influence of biogeochemical qualities of Shizuoka water on the degradation of PVC shower hose, *J. Environ. Protect.* 2, 204-212, 2010.
- M.S. Nahar**, J. Zhang, K. Hasegawa, S. Kagaya, S. Kuroda, Phase transformation of anatase–rutile crystals in doped and undoped TiO₂ particles obtained by the oxidation of polycrystalline sulfide, *Mater. Sci. Semi. Process*, 12, 168-174, 2009.
- M.S. Nahar**, K. Hasegawa, S. Kagaya, S. Kuroda, Enhanced degradation of phenol in an electrolyte-containing model wastewater using a combined photocatalyst of TiO₂ and Fe(ClO₄)₃ in a continuous flow-type shallow photoreactor combined with coagulation of TiO₂, *J. Ecotech. Res.* 13, 21-27, 2007.
- M.S. Nahar**, K. Hasegawa, S. Kagaya, S. Kuroda, Degradation of phenol under visible light irradiation using TiO₂ with Fe(III) and easy sedimentation of TiO₂ particle, *Bull. Chem. Soc. Jpn.*, 80, 1017-1019, 2007.
- M. S. Nahar**, *Goldschmidt 2021* (<https://doi.org/10.7185/gold2021.603>) Conference: Optimization of analysis methods for heavy metals in sediment for the trace element geochemistry of the Bay of Bengal Coast, Bangladesh.
- M. S. Nahar**, and J. Zhang, Spatial Distribution of Aquatic 1, 4-dioxane in Relation to Possible Sources in Paper Industrial Cities in Eastern Shizuoka, Japan, *Environmental Health 2011, – Resetting Our Priorities*, 6-9 February 2011, Salvador, Brazil.
- M.S. Nahar**, *JpGU-AGU 2020*, 24th May-28th Makuhari Messe Chiba, Japan.
- M.S. Nahar**, Sources, pathways and treatment of contaminants in surface water: Applicability in developing countries, *JpGU 2019*, May, Makuhari Messe Chiba, Japan.
- M.S. Nahar**, Evaluation of ICP-MS and XRF in Determining Arsenic, Mercury, Cadmium, and Lead in Soil, *JpGU 2018*, 22th May-26th May.
- M.S. Nahar, et al**, *EM-NETWORK*, “バングラデシュにおける土壌・水質汚染”, EM ネットワーク平成 29 年度 経営／技術WG 合同技術発表会.

M.S. Nahar, et al, Distribution of Heavy Metals in Beach Water and Sediment of the Coastal site. *JpGU-AGU Joint Meeting 2017* May 20- 25, in Chiba, Japan.

M.S. Nahar, Geochemistry, from rain water to groundwater and pollution in Dhaka water, Bangladesh, Japan Geoscience Meeting Union, 22th May-26th May, 2016.

M.S. Nahar, Analytical possibilities of X-Ray Fluorescence Spectrometer (XRF) for trace metals determination in soil by using reference standard, *JPGU 2016*, 22th -26th 2016.

M.S. Nahar, Marumo, K., Nishi A., Miyazaki J., 2016. Difference of quantitative analyze result of trace metals in matrix ions by using XRF and conventional ICP-MS, *WET (Water and Environment Technology Conference) 2016*, 27th -28th August Chuo University.

M.S. Nahar, J. Zhang, Charge transfer in anion doped polyaniline, *ISBN 978-1-84626, IPCSIT(ISSN:2010-460X)*, Thomson ISI (ISTP).

M.S. Nahar, Analytical possibilities of X-Ray Fluorescence Spectrometer (XRF) for trace metals determination in soil by using reference standard, *JPGU 22th-26th May 2016*.

M.S. Nahar, Geochemistry, from rain water to groundwater and pollution in Dhaka water. *JPGU 22th-26th May 2016*, Makuhari Messe, Chiba.

M.S. Nahar, The Use of Isotopic Technique to the Assessment of River Recharge to the Depleted Ground Water Systems in Dhaka, Bangladesh, *JPGU 2014*, Pacific Yokohama.

M. S. Nahar, and J. Zhang, Recovery of soft metals isotopes (²⁰⁸Pb and ¹¹¹Cd) in trace level using multifunctional biosorbent, *WET2013*, 15-16 Jun 2013, Tokyo Univ Agri Tech.

M. S. Nahar, and J. Zhang, Natural sources and thresholds of taste and health in H₂-rich drinking water, Ninth International Conference on *Environmental, Cultural, Economic and Social Sustainability, Conference*, 23rd to 25th Jan 2013 Hiroshima, Japan.

M. S. Nahar, and J. Zhang, Toxic Trace Metals Isotopes Sources: A case study from natural water sources, Eastern Shizuoka, Japan, *WET 2012*, Water and Environment Technology 29-30 June 2012, University of Tokyo, Japan.

J. Zhang, A. K. Mandal and **M. S. Nahar**, Global nutrient and carbon fluxes and linkages between submarine groundwater systems and the environment, *ASLO Aquatic Sciences Meeting*, 08th-13th Jul 2012.

M. S. Nahar, and J. Zhang, Charge transfer in anion doped polyaniline, International Conf. Elec. Eng. Appl., (*EEA 2011*), Chennai, India, 17-18 Dec, 2011, ISBN 978-1-84626.

M. S. Nahar, and J. Zhang, Investigation Procedure of Unknown Physical Changes in Shower Hoses by Assessing the Bio-Physico-Chemical Qualities of Eastern Shizuoka Water (proceeding), *Inter Conf. on Biomate. Sci. (ICBS)*, Japan, Mar15-18, 2011.

M.S. Nahar, and J. Zhang Model Including Organic, Inorganic and Trace Metals Constituents, *17th Asian symposium on ecotechnology*, Kurobe, Japan, Nov.2010, p27.

M. S. Nahar, and J. Zhang, Natural Sources and Thresholds of Taste in “Tasty” Water in Toyama, 第3回富山大学環境推進フォーラム環境編ポスター発表, (University of Toyama), 2009年12月25日.

M.S. Nahar, K. Hasegawa, S. Kagaya, Degradation of Phenol under Visible Light Irradiation using TiO₂ with Fe(III) and Easy Sedimentation of TiO₂ particle. *87th Spring Annual Meeting of the Chemical Society of Japan*, pp. 192, March 2007.

M.S. Nahar, K. Hasegawa, S. Kagaya, and S. Kuroda, Relationship concerning the

adsorption and photoirradiation of iron-hydroxy complexes on the surface of TiO₂ and photocatalytic activity of iron-TiO₂ combined system (Proceeding). *Joint meeting of the 1st Asian-Oceanian Conference on Green and Sustainable Chemistry and the 7th Annual Green and Sustainable Chemistry Symposium (GSCN-AON)*, pp. 188, March 2007.

M.S. Nahar, K. Hasegawa, S. Kagaya, Characteristics and catalytic properties of Fe-doped TiO₂ particles in aqueous photooxidation. *JAIST Inter Symp (NT2006)*, 84-85, 2006.

M.S. Nahar, K. Hasegawa, S. Kagaya, Photocatalytic degradation of phenol by visible ray-responsive Fe-doped titanium dioxide and spontaneous sedimentation of the particles. *8th Spring Annual Meeting of the Chemical Society of Japan*, pp. 516, March 2004.

MOU (Memorandum of Understanding):

Helping to conclude an inter-university academic exchange agreement between the University of Toyama, Japan, and the University of Rajshahi, Bangladesh. Professor Jing Zhang visited Bangladesh in March 2023 and attended three seminars to discuss the MOU with the University of Rajshahi and with the University of Toyama, those seminars were successfully performed.

Cooperated in the selection of Japanese Government Scholarship students:

Introducing international students in student exchange activities in terms of education, establishing research collaboration between the UT and well-known university of all over the Asian Countries (e.g. Bangladesh, Pakistan, India, Indonesia).