



## Naoki KANO, Dr. Sci.

Associate Professor

Program: Advanced Materials Science and Technology

Area: Applied Chemistry and Chemical Engineering

Undergraduate: Dept. of Chemistry and Chemical Eng.

### Professional Expertise

His professional expertise encompasses environmental analytical chemistry, and environmental preservation measures. Investigation on the behavior of environmental pollutants (in particular heavy metal and radionuclide) and development of an efficient method for the separate determination of each species of heavy metals, investigation for recovery of heavy metals in the environment and ecosystem using natural resources such as biomass (seaweed, shell, chitosan etc.), humic substances, clay minerals, alginate and charcoal are conducted.

### Research Fields of Interest

#### Environmental Analysis

- (1) Water Environment (Lagoon, River)
- (2) Atmospheric Environment (Precipitation)
- (3) Marine Environment (Seawater, Seaweed)
- (4) Soil Environment (Paddy, Upland, Crop)
- (5) Radiochemical Analysis

#### Environmental Preservation

- (1) Biosorption  
(Seaweed, Shell, Chitosan, Charcoal etc.)
- (2) Phytoremediation  
(*Pteris vittata*, *Artemisia princeps*, *Matteuccia struthiopteris* etc. )



### Education

1995: Doctoral Sci. degree (Earth and Planetary Physics), University of Tokyo

1991: Master Sci. degree (Chemistry), University of Tokyo

1989: Bachelor Sci. degree (Chemistry), University of Tokyo,

## Professional Societies and Activities

1. The Japan Society for Analytical Chemistry, Kanto Branch, the standing committee (2008.3-)
2. Chemical Society of Japan, Kanto Branch, the standing committee (2009.4-)
3. Environmental Council in Niigata Prefecture, (2005.6-)
4. Liaison Conference for Acid Rain in Niigata Prefecture, Chief Secretary (2005.11-2011.10), President (2011.11-)

## Awards

1. Radioisotopes Paper Incentive Award; July, 1997 (Japan Radioisotope Association)

## Major Publications

### Papers

- [1] "Adsorption of heavy metal onto activated carbon modified with Potassium permanganate (KMnO<sub>4</sub>)" *Journal of Chemical Engineering of Japan*, 47(5) 386-391 (2014)
- [2] "Adsorption of Cu(II), Pb(II) by Mg-Al layered double hydroxides (LDHs): intercalated with the chelating agents EDTA and EDDS" *Journal of Chemical Engineering of Japan*, 47(4) 324-328 (2014)
- [3] "Removal of U(VI) from Aqueous Solution Using Carbon Modified with Nitric Acid" *Journal of Chemical Engineering of Japan*, 47(4) 319-323 (2014)
- [4] "Concentration and Chemical Speciation of Heavy Metals in Sludge and Removal of Metals by Biosurfactants Application" *J. Chem. Chem. Eng.* 7, 1188-1202 (2013)
- [5] "Seasonal Variation of Tritium and Major Elements in Snow and Precipitation in Niigata Japan" *Journal of Environ. Sci. Engineering A1* (2012) pp 1218-1225
- [6] "Kinetic estimation of hydrogen isotope exchange reaction between tritiated-water (HTO) vapor and each amino acid in a heterogeneous system" *Journal of Nuclear Science and Technology*, 49(7) 667-672 (2012)
- [7] "Behavior and Distribution of Heavy Metals Including Rare Earth Elements, Thorium, and Uranium in Sludge from Industry Water Treatment Plant and Recovery Method of Metals by Biosurfactants Application" *Bioinorganic Chemistry and Applications*, Vol. 2012, Article ID 173819, 11 pages (2012), (doi:10.1155/2012/173819)
- [8] "Effect of EDTA and EDDS on phytoremediation of Pb- and Zn- contaminated soil by *Brassica Juncea*" *Advanced Materials Research* Vols. 518-523 (2012) pp 5040-5046
- [9] "Fractional determination of Some Metallic Elements including Rare Earth Elements, Thorium and Uranium in Agriculture Soil by Sequential Extraction Procedure" *Radioisotopes*, 60(11), 443-462 (2011)
- [10] "Observation of the Movement of the Precipitation by Using Tritium Tracer" *Radioisotopes*, 60(9), 363-374 (2011)
- [11] "Biosorption of Lanthanides using Three Kinds of Seaweed Biomasses" *Radioisotopes*, 59 (11), 623-636 (2010)
- [12] "Biosorption of Rare Earths Elements, Thorium and Uranium using *Buccinum Tenuissimum* Shell Biomass" *Radioisotopes*, 59 (9), 549-558 (2010)
- [13] "Biosorption of lanthanides from Aqueous Solutions using Pretreated *Buccinum tenuissimum* Shell Biomass" *Bioinorganic*

*Chemistry and Applications*, Vol. 2010, Article ID 804854, 10 pages (2010), (doi:10.1155/2010/804854)

[14] "Characteristics of oxygen stable isotopic ratio in precipitations in Niigata Prefecture, Japan" *Radioisotopes*, 59(2), 93-102 (2010)

[15] "Behavior and Distribution of Rare Earth Elements, Thorium and Uranium in Soil Environment" *Radioisotopes*, 58(11), 727-741 (2009)

[16] "Speciation analysis of chromium in environmental waters in Niigata Prefecture by applying size fractionation and ion-exchange methods" *Journal of Ecotechnology Research*, 14(4), 239-246 (2009)

[17] "Biosorption of Uranium and Rare Earth Elements using biomass of algae", *Bioinorganic Chemistry and Applications*, Vol. 2008, Article ID 706240, 8 pages (2008), (doi:10.1155/2008/706240)

[18] "Determination of Rare Earth Elements, Thorium and Uranium in Seaweed Samples on the Coast in Niigata Prefecture by Inductively Coupled Plasma Mass Spectrometry" *Applied Geochemistry*, 23, 2955-2960 (2008)

[19] "Environmental characteristics of lagoon waters in Niigata Prefecture based on oxygen stable isotopic ratio and the concentrations of dissolved materials" *Radioisotopes*, 57(7), 405-418 (2008)

[20] "Study on Reduction of Chromium Using Humic Substances and Clay Minerals", *Journal of Ecotechnology Research*, 13(2), 79-84 (2007)

[21] "Environmental characteristics of precipitations based on both oxygen stable isotopic ratio and concentration of rare earth elements (REEs), thorium (Th), uranium (U) in Niigata Prefecture" *Radioisotopes*, 55(6), 307-317 (2006)

[22] "Effect of temperature on HTO-Dissociation determined by Ion Exchange Resins." *Analytical Sciences*, 15, 1071-1076 (1999).

[23] "Tritium Incorporation into Functional Materials by Applying OT-for-OH Exchange Reaction." *Biological Trace Element Research*, 71-72, 509-518 (1999).

### Book Chapters

Kano, N. 2013. "Biosorption of Lanthanides Using Some Marine Biomass," *Biomass Now - Sustainable Growth and Use*, In Tech. Chap. 4 (pp. 101-126).