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&

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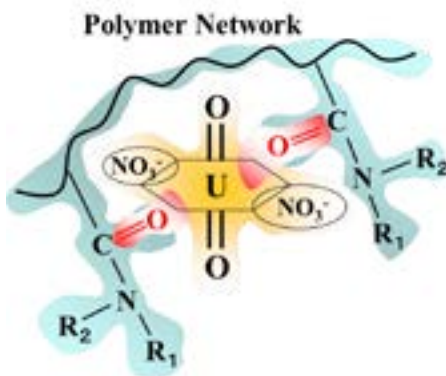
## Masanobu Nogami

Kindai University Osaka, Japan

### Development of monoamide resins for selective recovery of uranium (VI) from nitric acid media

Uranium(VI) (UO<sub>2</sub>, uranyl ion) is the most stable U species in aqueous nitric acid solutions. Separation of U(VI) from HNO<sub>3</sub> containing U(VI) and other metal ions is very important to treat radioactive wastes. Chromatographic separations have an advantage compared with solvent extraction techniques for separation in small and medium scales, because of better separation properties by a multistage processing with compact equipment and easier handling. We have developed novel resins with selectivity to U(VI) in HNO<sub>3</sub> media. The functional groups have the structure of monoamides (RR'NCOR'': R, R', R''; hydrocarbon groups) which have been studied as extractants for actinide (An(IV) and An(VI)) species in HNO<sub>3</sub> media. In the present study, resins of synthetic monoamide polymers supported on the surface of porous silica and their adsorptivities to U(VI) to major fission product ions (FPs) will be introduced together with a commercial monoamide resin. We will show that the adsorptivities of the resins to U(VI) and FP ions are dramatically affected by the changes in the chemical structures of

the monoamide groups. Mutual separation of An(IV) and An(VI) by the resins and stability against gamma-ray irradiation of the resins will also be presented. This work was partially supported by JSPS KAKENHI GrantNumber JP16H04628.



#### Biography

Masanobu Nogami received his PhD in engineering from Tokyo Institute of Technology in 1996. After working at the Nuclear Chemical Engineering Center of Institute of Research and Innovation, Japan, and Tokyo Institute of Technology, he was adopted as an associated professor at Kindai University in 2010 and promoted to a professor in 2016. His research interests are in chemical separation related to nuclear fuel cycle, especially adsorption, extraction and precipitation for actinide elements and various rare metals. He has published more than 50 scholar papers and was a member of editorial boards of Journal of Nuclear Science and Technology.

[mnogami@ele.kindai.ac.jp](mailto:mnogami@ele.kindai.ac.jp)