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## Wei YZ

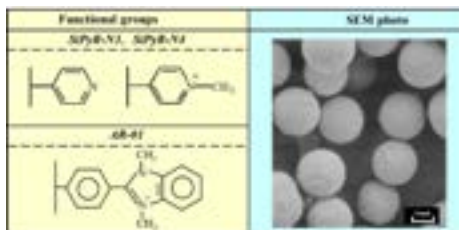
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### Novel adsorption materials for the recovery of noble metal fission products from spent nuclear fuels

Spent nuclear fuel contains significant amount of fission product noble metals such as Pd, Ru, Rh and Tc. They tend to form separate phases as metallic or alloy state during the vitrification process of High level liquid waste (HLLW) generated in the spent nuclear fuel reprocessing (PUREX process) and cause deterioration in the stability of the glasses. On the other hand, these noble metals may be potentially important resources as industrial materials in the future. Therefore, separation of these noble metals from HLLW is of great significance. To selectively recover these noble metals from HLLW, we have developed an advanced ion exchange process by using novel silica-based adsorption materials, which were synthesized by immobilizing functional organic resins in porous silica particles with a mean diameter of 60  $\mu\text{m}$  and pore size of around 50-600nm. This new type of anion exchangers has fast diffusion kinetics, improved chemical stability and low pressure drop in a packed

column. Adsorption and separation behaviour of Pd, Ru, Rh and Tc with different oxidation state in nitric acid solution was studied. Small scale separation tests using simulated and actual HLLW solutions were carried out. Pd was successfully separated from a simulated spent fuel solution using AR-01 resin packed column. The adsorption behaviour of Ru and Tc depended on their oxidation states. Rh showed very weak adsorption.



#### Biography

Wei YZ has completed his PhD in metallurgical engineering at the age of 27 years from Tohoku University, Japan. Currently, he is the dean of School of Resources, Environment and Materials, Guangxi University, China. He has published more than 240 papers in reputed journals and has been serving as an editorial board member of Journal of Nuclear Science and Technology, Nuclear Science and Techniques, Ion Exchange Letters, etc.

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