

Takeshita Lab.

Toward the innovative nuclear energy system

Laboratory for Advanced Nuclear Energy

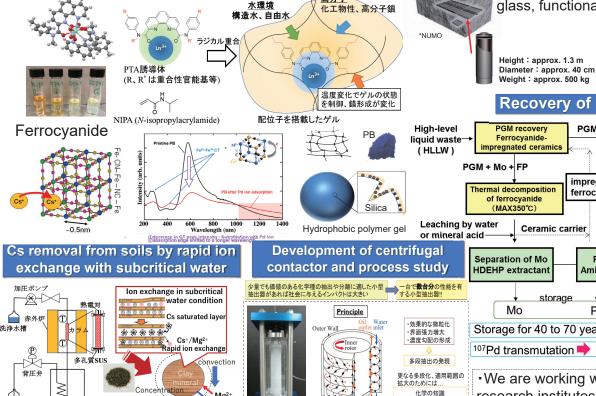
http://www.lane.iir.titech.ac.jp/~takeshita/

- Innovative Nuclear Fuel Cycle
- Recycle of reusable materials
- Recovery and conservation of environment

流れ場と界面での物質輸送

We are interested in solving issues related to energy and environment, which are for all the human Especially, remediation of Fukushima area, management of radioactive waste generated from NPP and separation science related to NFC are of our great interests. We are developing extractants and adsorbents for particular separation as well as investigating characterization and mechanism. Application study and system evaluation are also carried Geological disposal out. Our goal is to establish sophisticated and innovative nuclear energy system.

Development of extractants and adsorbents for particular separation



Integration of nuclear fuel cycle Natural U MA separation and Recovered U Conversion storage technology Conversion of of natural U enriched U (UF6 FABRICATION **Nuclear Fuel Cycle** Transmutation cycle Pu. recovered U REPROCESSIN Studies related Development of to Fukushima centrifugal contactor remediation echnology Vitrified waste Vitrification technology for higher waste loading Scenario optimization study

Development of new indicators to evaluate the entire NFC from the viewpoint of waste amount and disposal area

Vitrification technology

Synthesis and characterization of borosilicate glass, functionalized glass, apatite)

Glass frit

giass, full culturalized glass, apartic (Cs.sr., REE_PO

Recovery of PGMs from HLLW

High-level quid waste process and process

Mo Pd Ru Rh

Storage for 40 to 70 year → Reuse

107Pd transmutation → Reuse

 We are working with many collaborators in research institutes, universities and companies
 We have many students and stuffs to support students

n setup Rapid and efficient extraction separation system

 $-(1-\varepsilon)\rho q$, q = KC

Continuous process by column setup