IRCSEM

INOUE LAB.

[Novel glass prepared by gas levitation furnace]

International Research Center for Sustainable Energy and Materials

Amorphous Materials Design

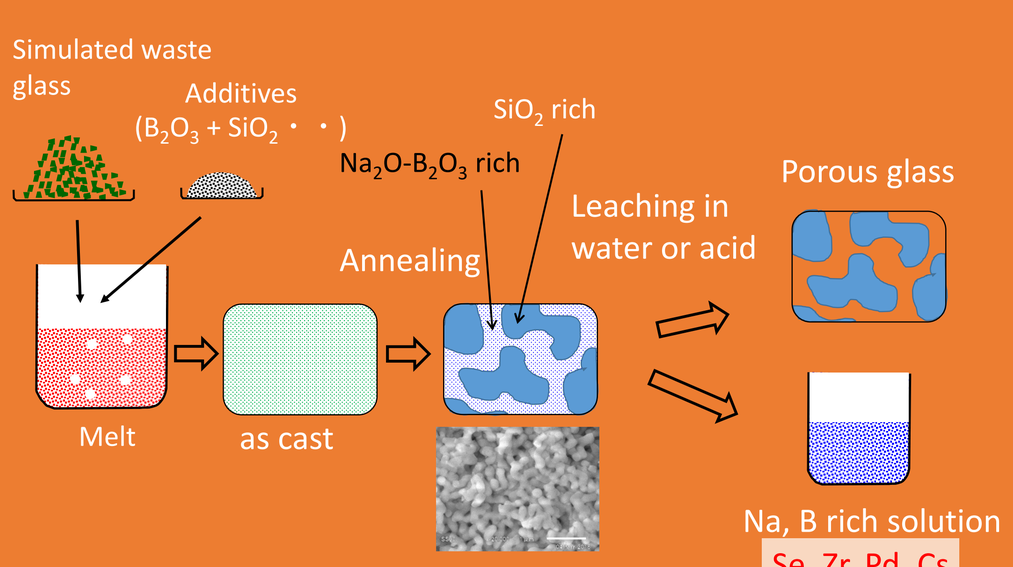
Department of Materials Engineering

http://www.vitreous.iis.u-tokyo.ac.jp

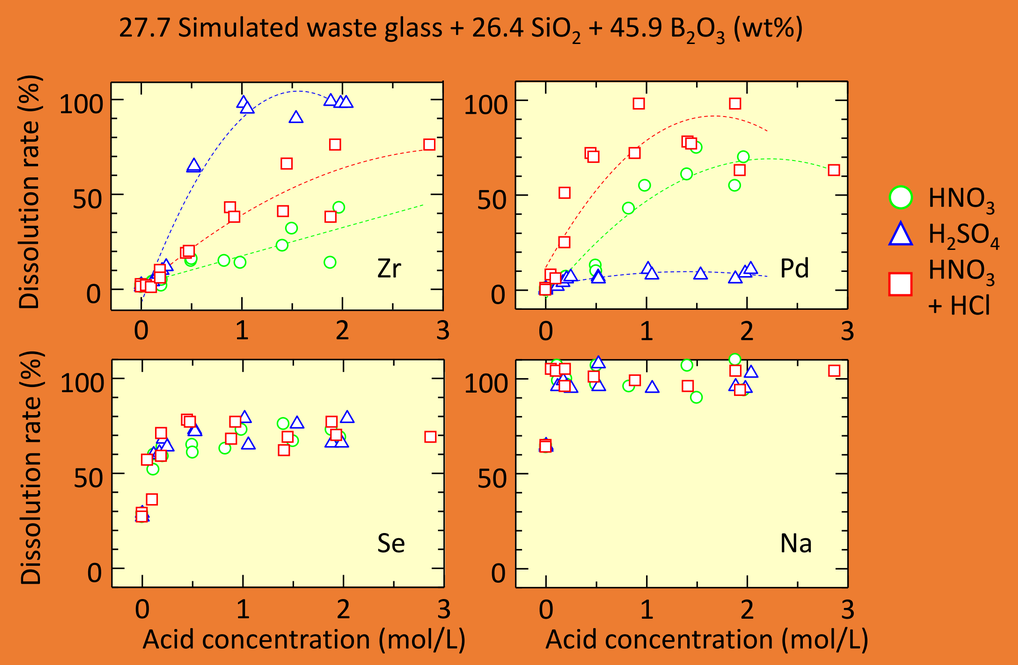
「Material Design of Amorphous States」

We study the materials from an amorphous state to a liquid state. Atomic and electronic structures of the amorphous and liquid states have not been well understood. We study the method in order to understand these materials, and apply it to a variety of materials. Moreover we will produce novel materials and their applications.

◊ Control of the chemical durability of nuclear waste glasses



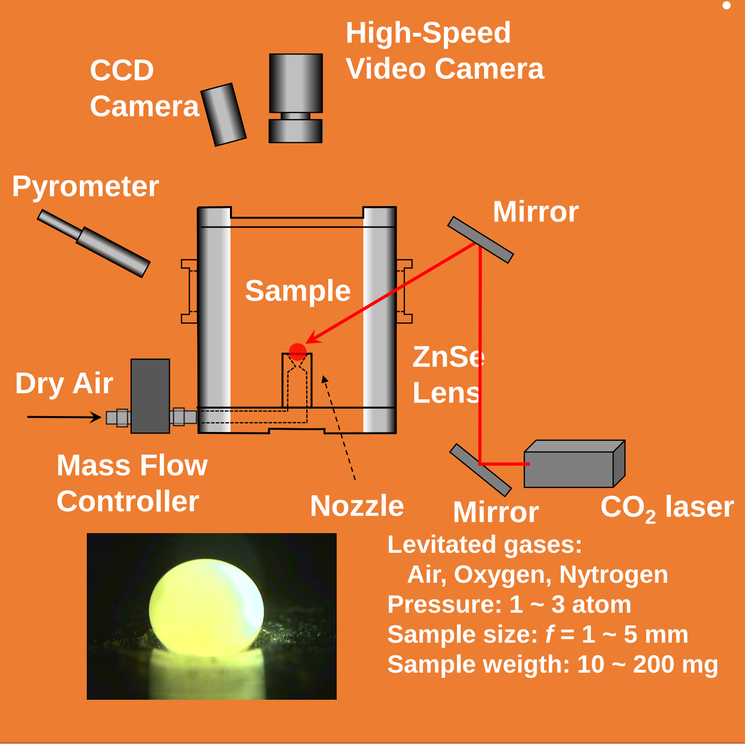
(* ; Different reaction conditions from deep geological disposal environment)



Dissolution rate of Zr, Se, Pd, Na to the acid solutions

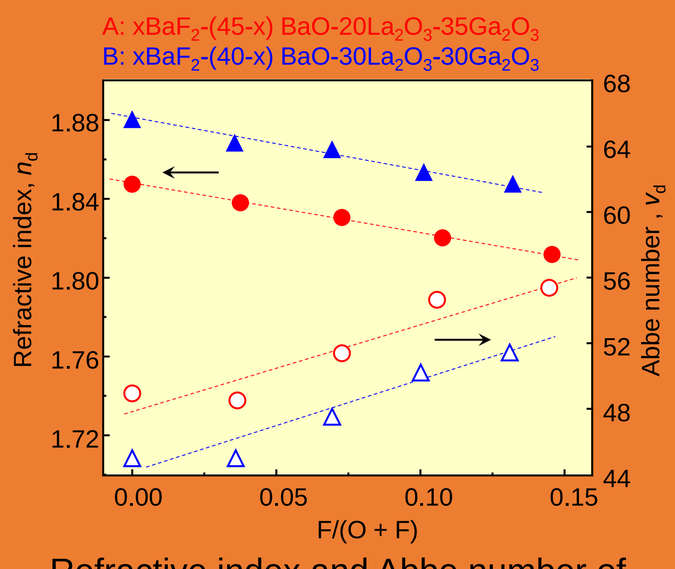
◊ Glasses prepared by gas levitation furnace and their physical properties

Gas levitation furnace

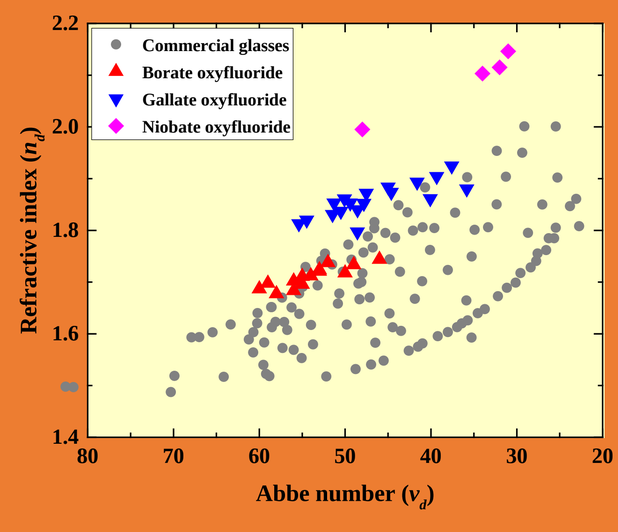


Levitated gases:
Air, Oxygen, Nytrogen
Pressure: 1 ~ 3 atom
Sample size: *f* = 1 ~ 5 mm
Sample weigth: 10 ~ 200 mg

- Magnetism of transition metal oxide containing glass
- Luminescence of rare earth ion containing glass
- Refractive index of oxyfluoride glass



Refractive index and Abbe number of new gallate oxyfluride glasses



New oxyfluoride glasses with high n_d and v_d