sck cen

Belgian Nuclear Research Centre

R&D on Xe trapping at SCK CEN

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WOSMIP Remote

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Experimental system

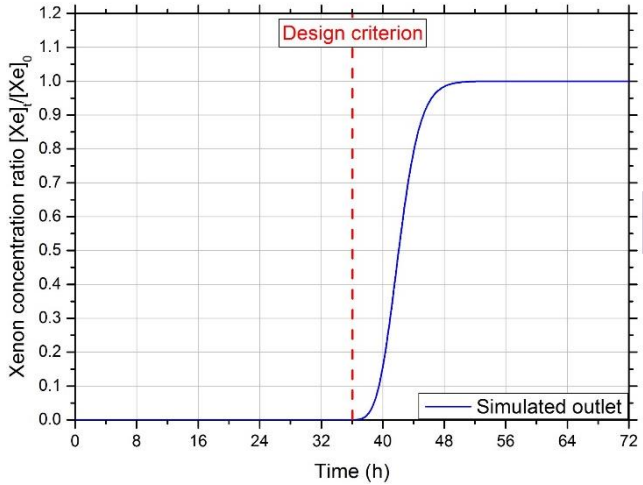
Current features

- Species: Xe, Kr or Ar
- Carrier gas:
  He, Ar, N_2 or Air
- Concentration range:
  100 ppb to 10 000 ppm
- Measured species:
  Xe, Ar, Kr, O_2, CO_2 N_2, He, H_2O, …
- Temperature range adsorbent:
  -80°C to 250°C
- Flow rate: up to 1.5 L/min
- Moisture content:
  ~ 0 to 90 % R.H.

Modelling capabilities

- Simulation of the advection-diffusion-adsorption process in Comsol Multiphysics®

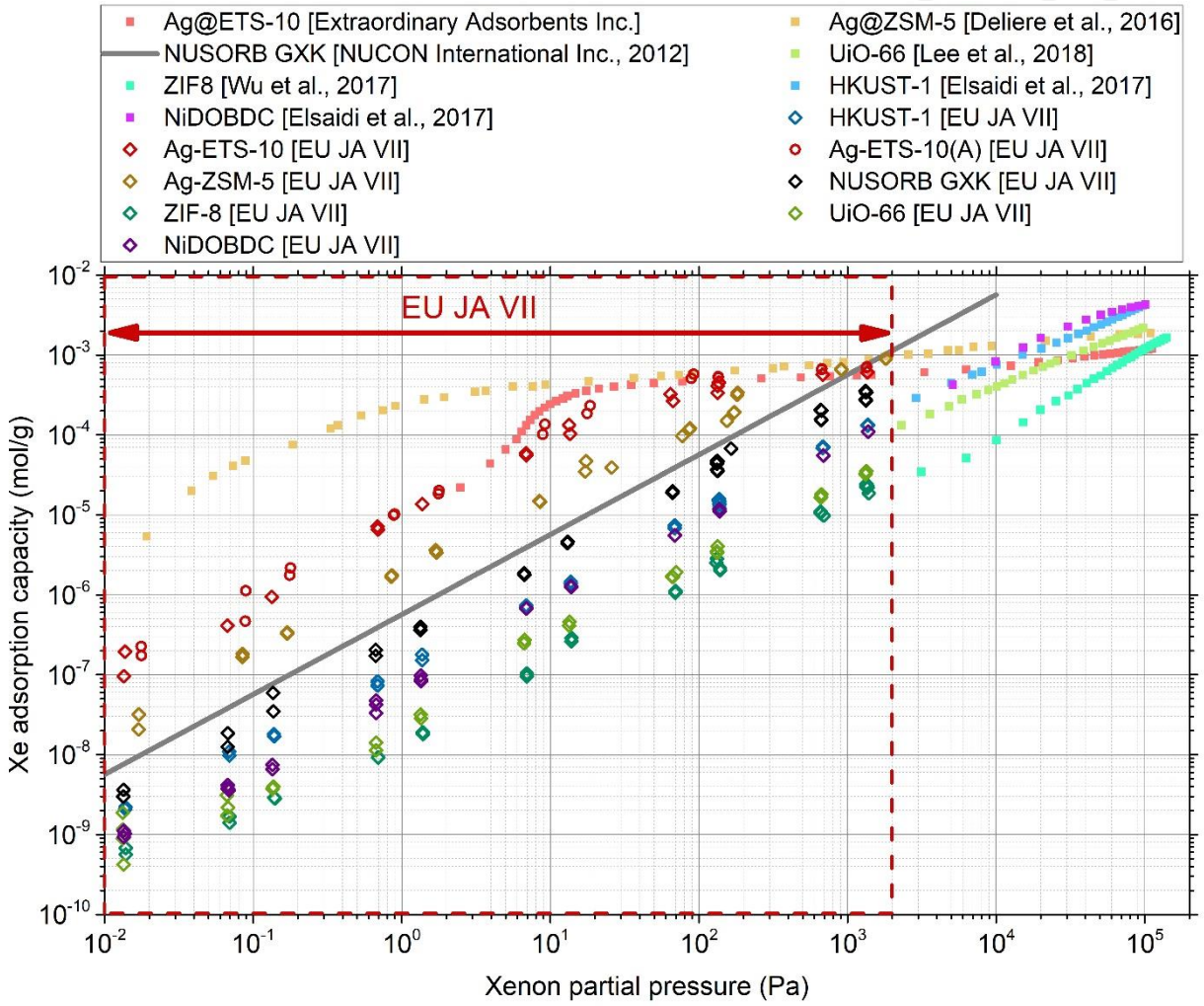
Design studies



Prototype construction

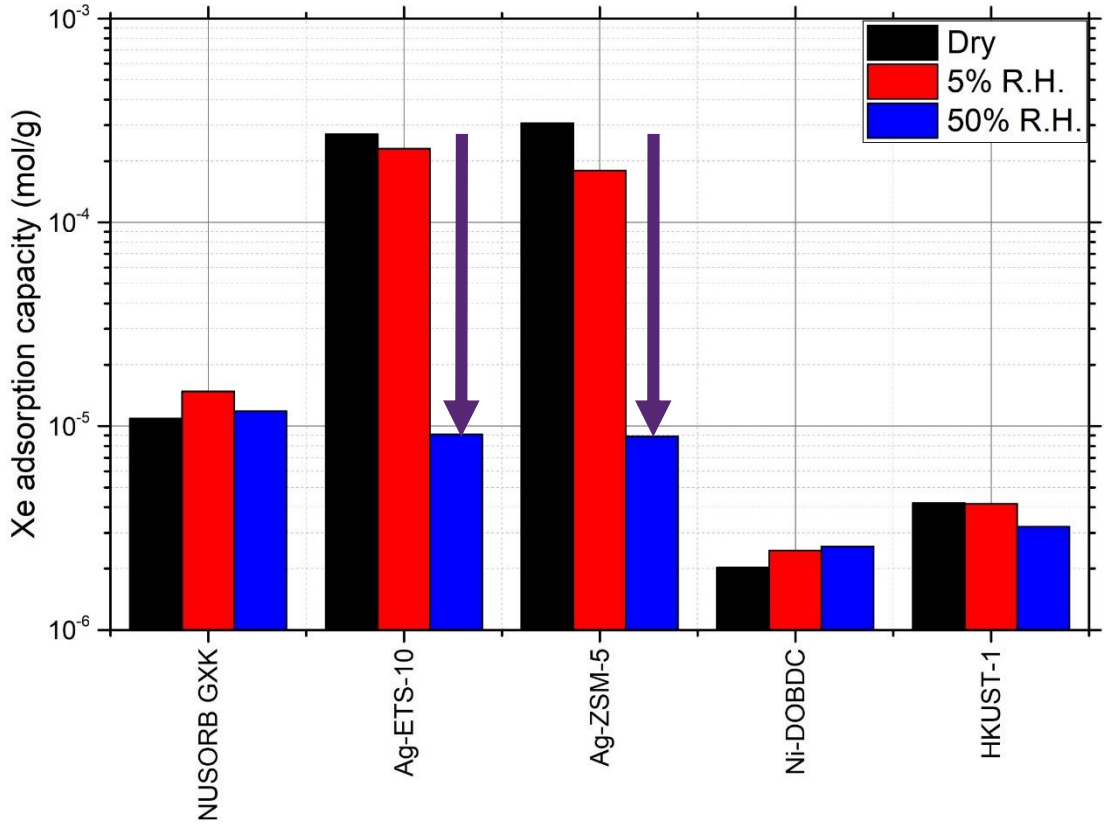
Recent achievements (1/2)

- Xe/N_2 adsorption isotherm 8 materials
- Ranking at 1 ppm Xe in N_2
  - Ag-ETS-10(A)
  - Ag-ETS-10 ~ X 70
  - Ag-ZSM-5 ~ X 20
  - NUSORB® GXK ~ X 3
  - HKUST-1 ~ 1
  - Ni-DOBDC
  - UiO-66
  - ZIF-8



Recent achievements (2/2)

- Effect of moisture on Xe adsorption



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