Experiments related to ^{235}U, ^{238}U, ^{56}Fe, and ^{23}Na

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Experiments to be taken into considerations

- **^{235}U: ZPR9-34 (good also for ^{56}Fe), but also other ^{235}U cores from ICSBEP and/or IRPhEP**
- **^{238}U: ZPR3-53 (K_{eff} and reaction rate slopes, also sensitive to intermediate energy region of ^{239}Pu), CIRANO-2A (only available CEA-DOE), IPPE ^{238}U transmission sphere (availability?).**
- **^{56}Fe: ZPR3-54 (K_{eff} and reaction rate slopes), CIRANO-2B (only available CEA-DOE, sensitive to SS), EURACOS ^{56}Fe, ASPIS, OKTAVIAN (?, fusion source) and, possibly, others from SINBAD.**
- **^{23}Na: EURACOS ^{23}Na, JANUS-8 ^{23}Na, sodium void reactivities to be selected from IRPhEP**

IPPE ^{238}U transmission sphere

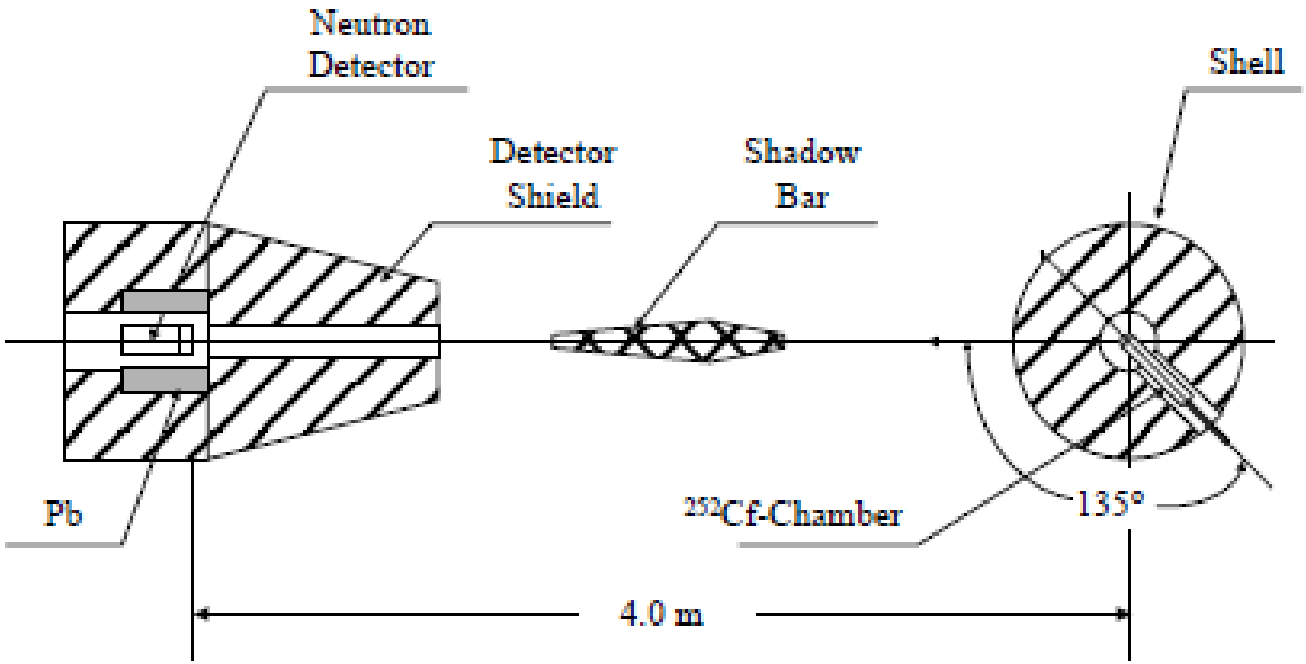
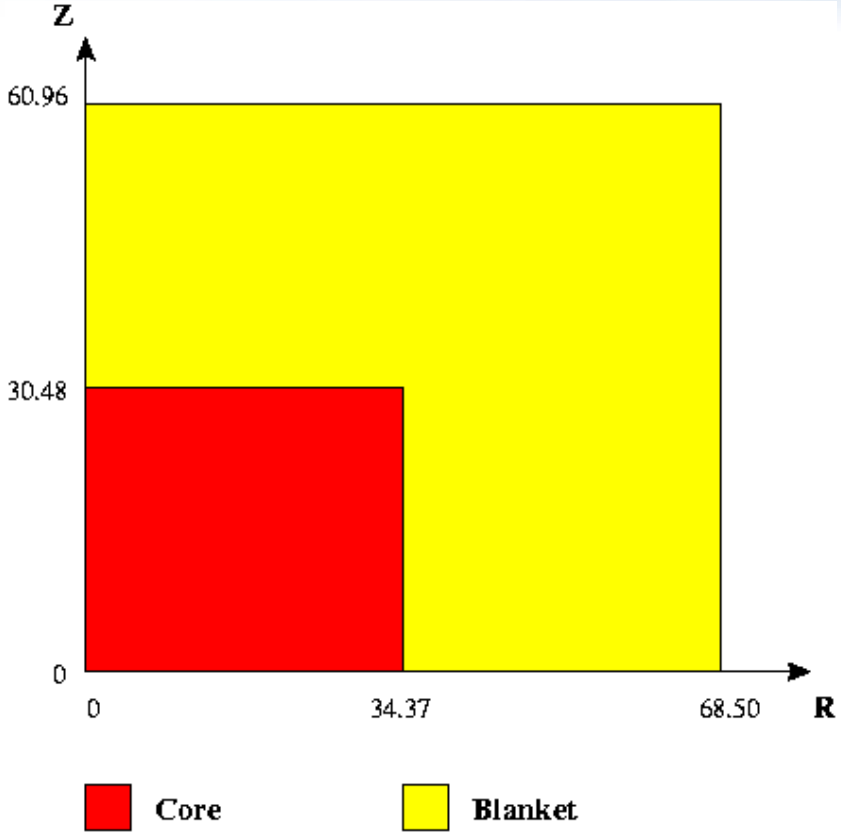
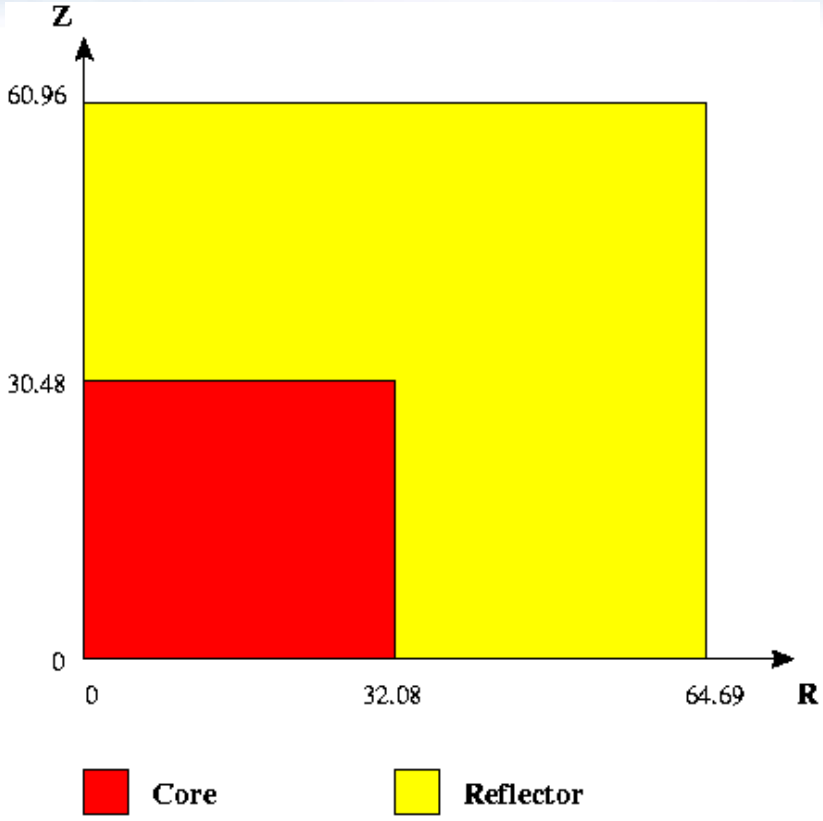


FIGURE 3. Experimental set-up for the neutron leakage spectra measurement from the U sphere with the ^{252}Cf source.

ZPR-3 Configurations

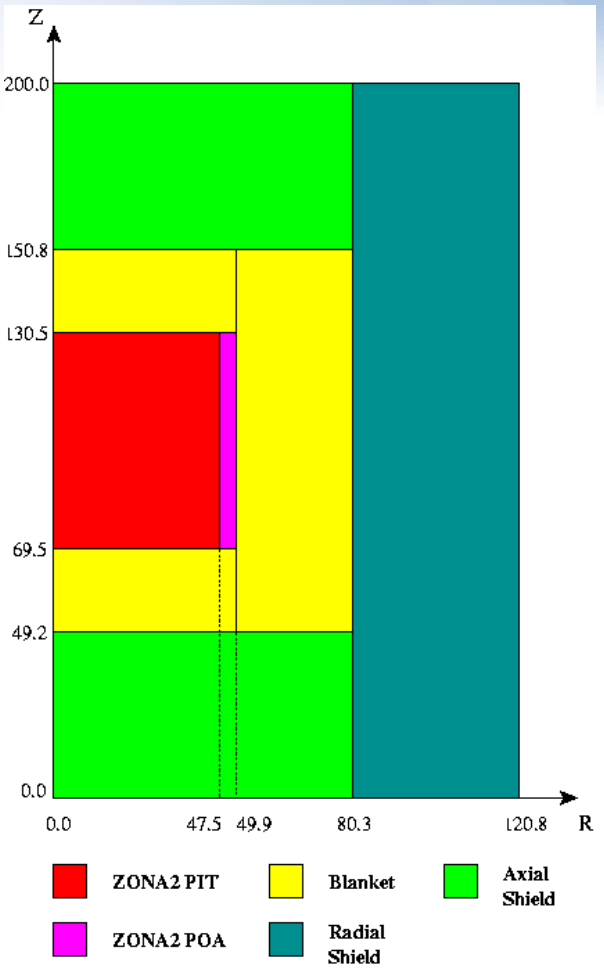


ZPR-3 Assembly 53

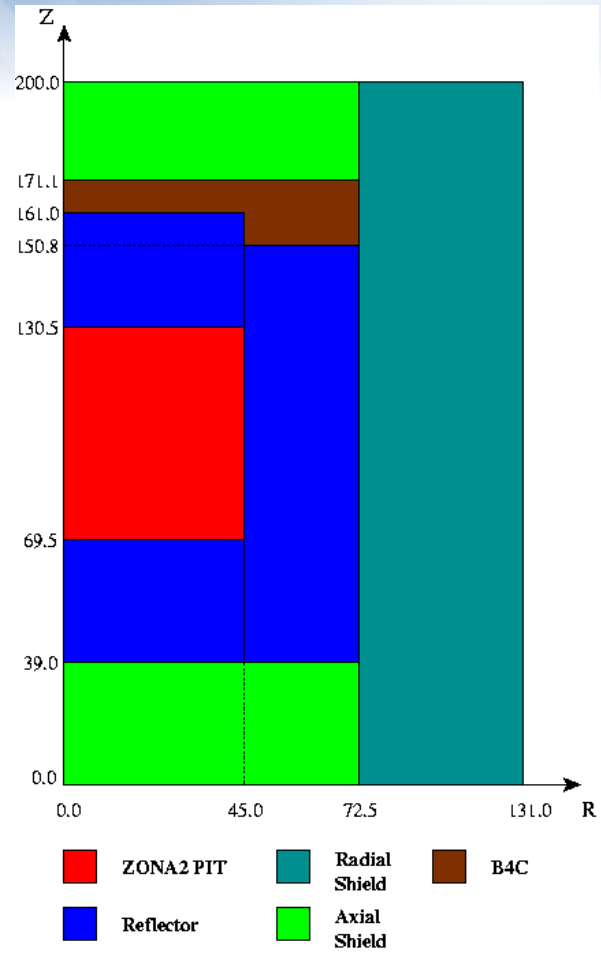


ZPR-3 Assembly 54

CIRANO Configurations

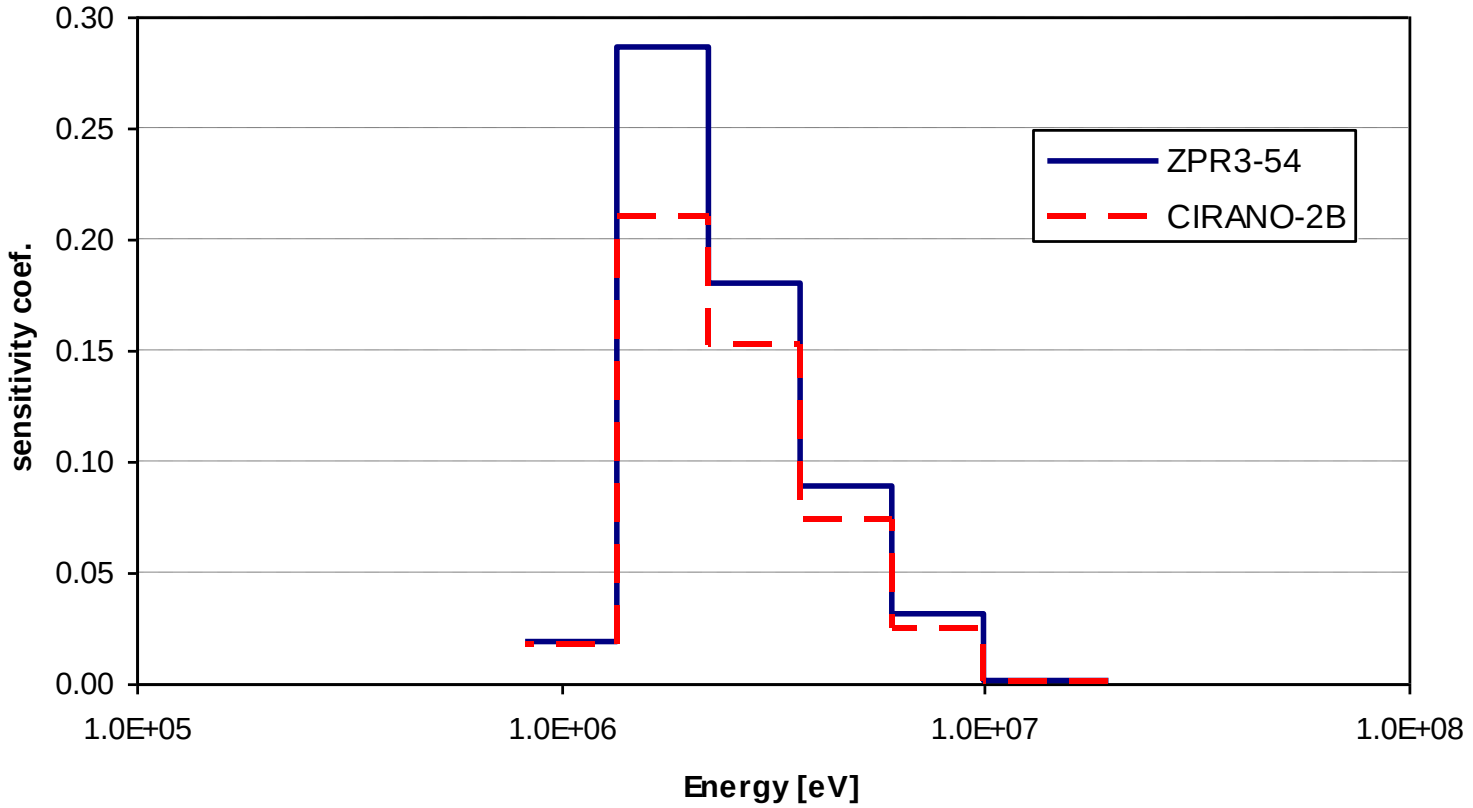


CIRANO 2A

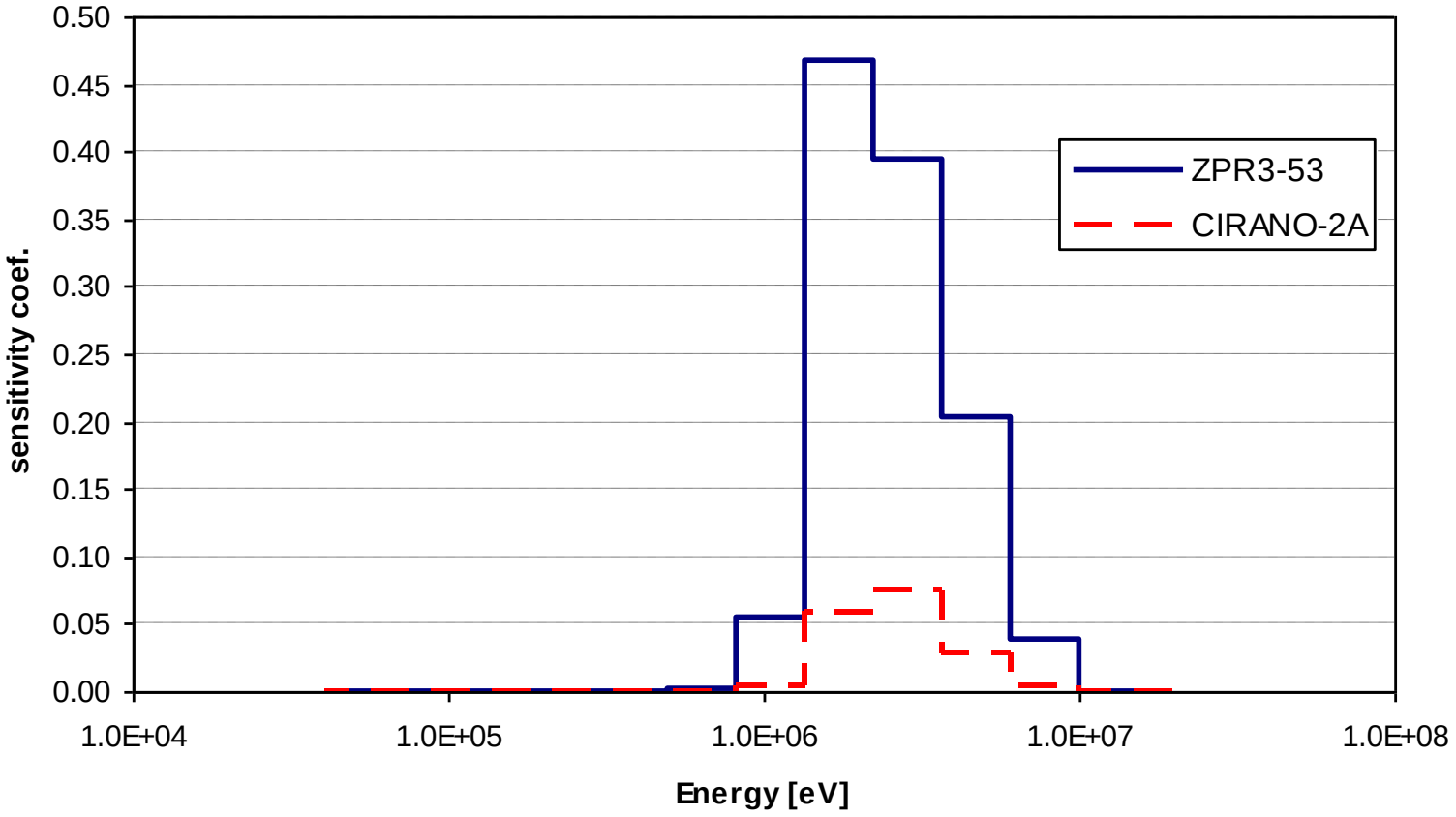


CIRANO 2B

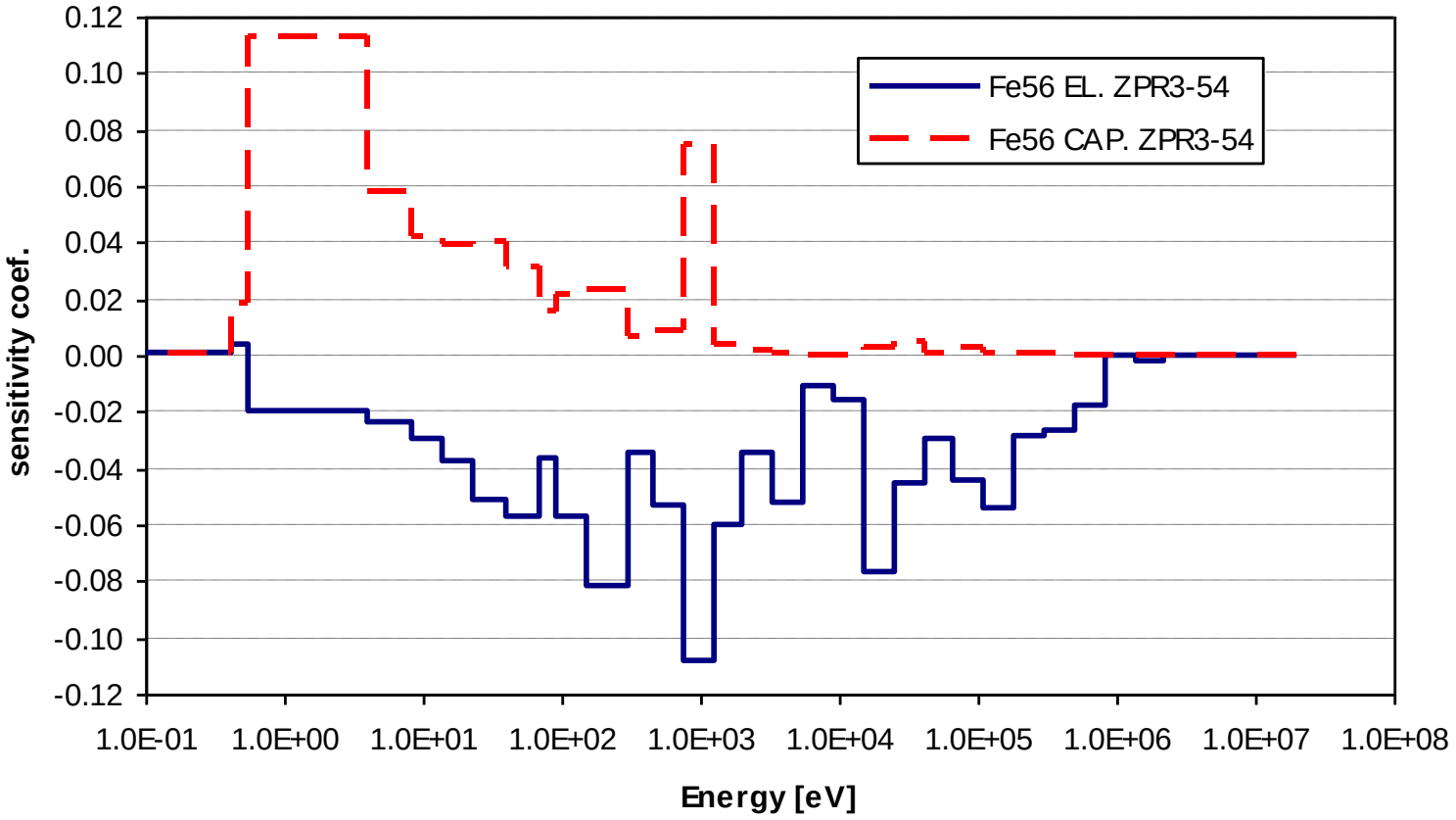
Sensitivity profile of Fe56 inelastic to U238 fission slope in ZPR3-54 and CIRANO-2B



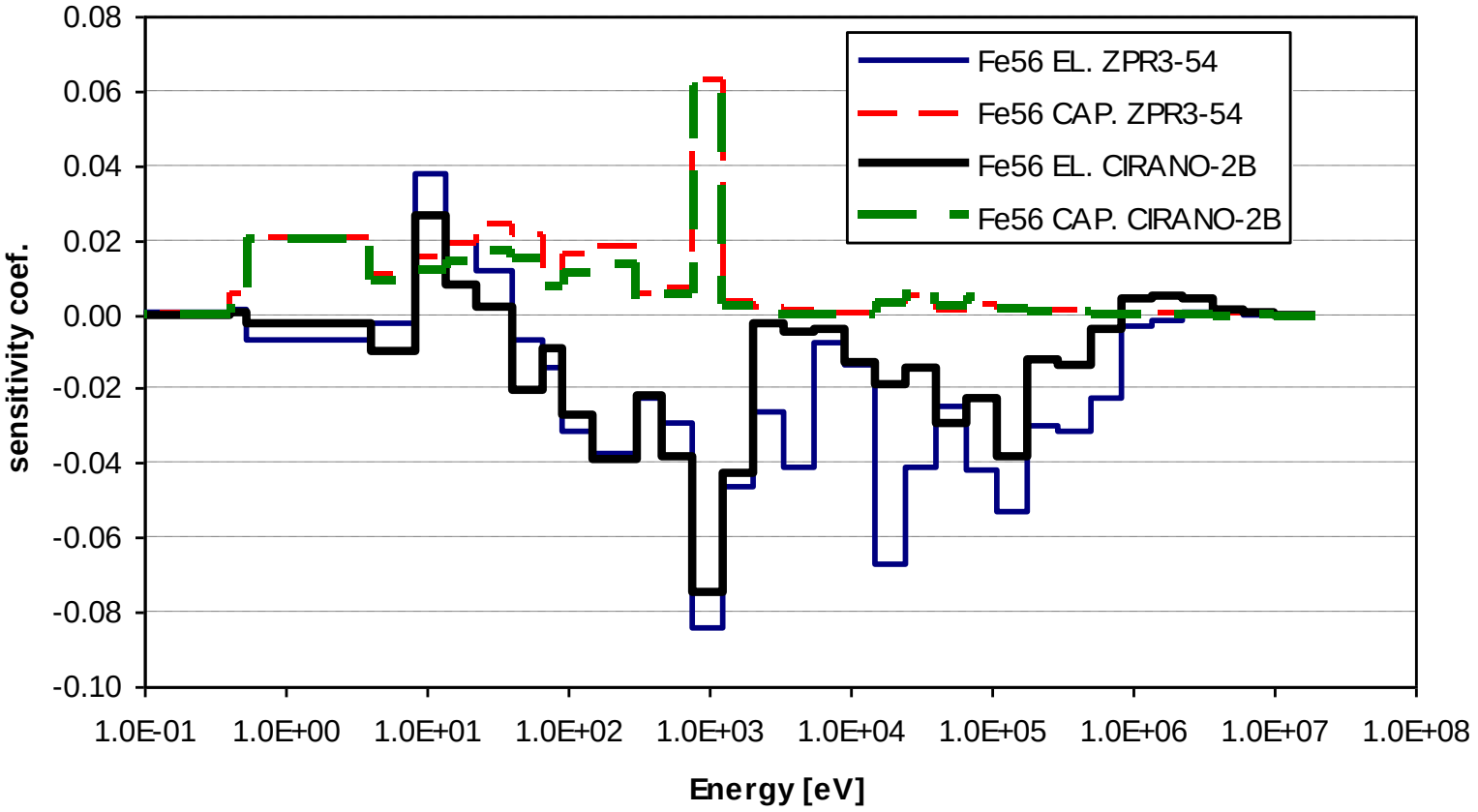
Sensitivity profile of U238 inelastic to U238 fission slope in ZPR3-53 and CIRANO-2A



Sensitivity profile of Fe56 elastic and capture to B10 n,α slope in ZPR3-54



Sensitivity profile of Fe56 elastic and capture for U235 fission slope in ZPR3-54 and CIRANO-2B

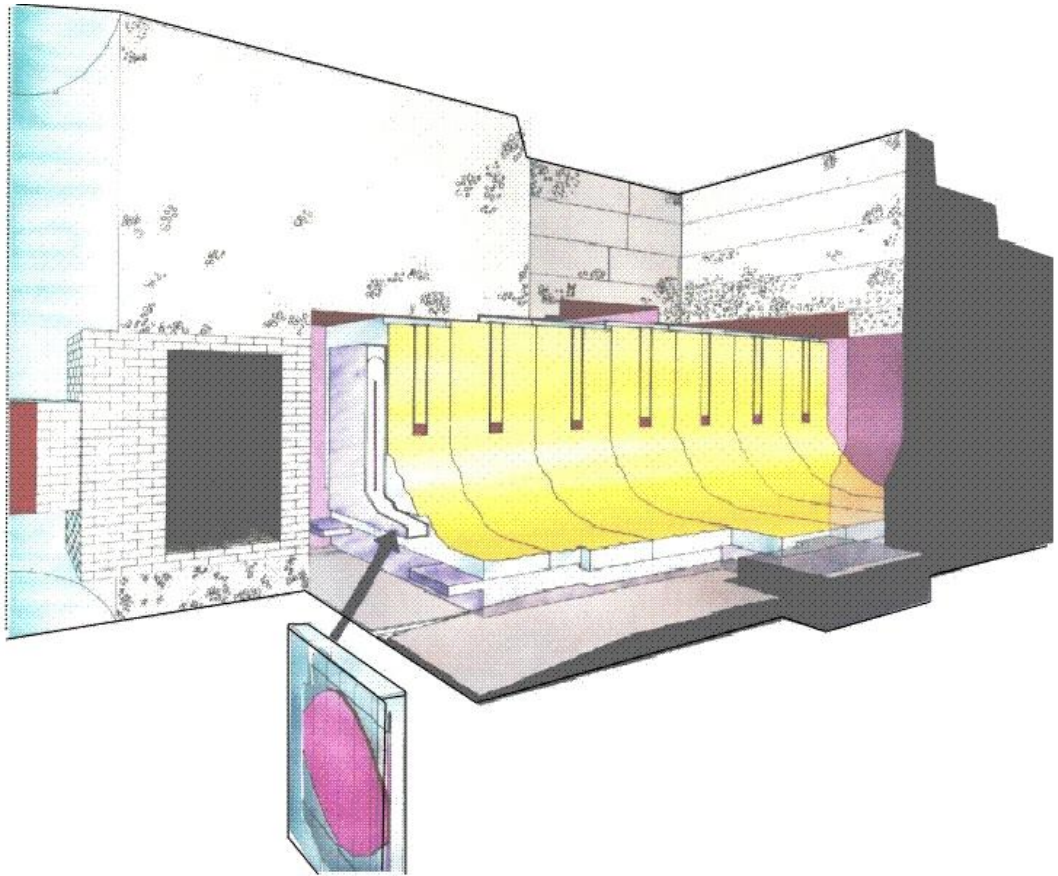


Integrated sensitivity coefficients

		F9 gradient		F8 gradient	
		ZPR3-53 (U blkt)	ZPR-54 (Fe refl)	ZPR3-53 (U blkt)	ZPR-54 (Fe refl)
Fe-56	capture	0.0	0.32	0.0	0.02
	inelastic	0.1	-0.02	0.0	0.61
	elastic	0.1	-0.77	0.04	0.05
U238	capture	0.38	0.0	0.02	0.0
	inelastic	0.19	0.0	1.18	0.02
	fission	-0.09	0.0	-0.11	0.0

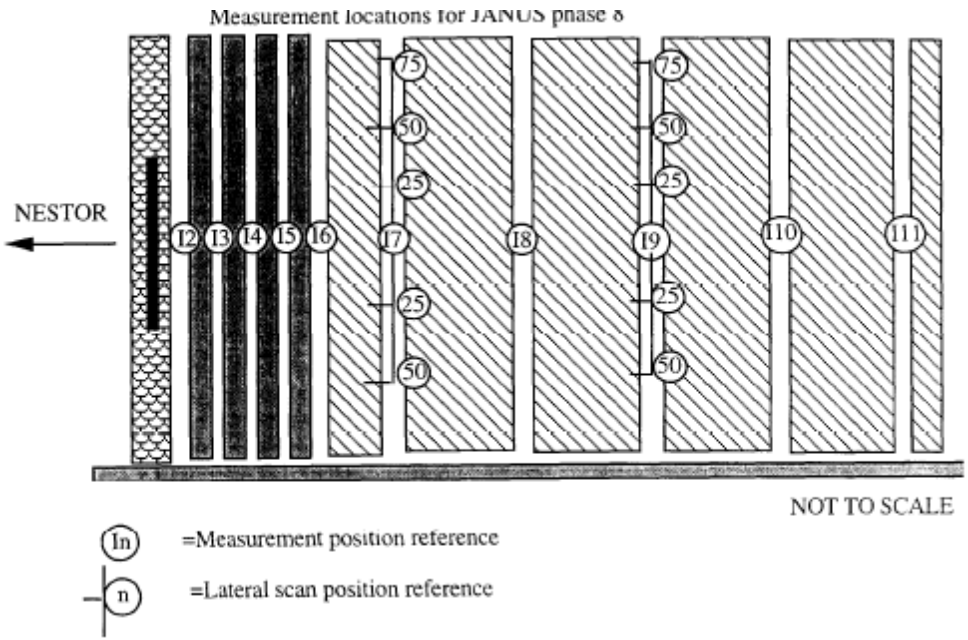
EURACOS

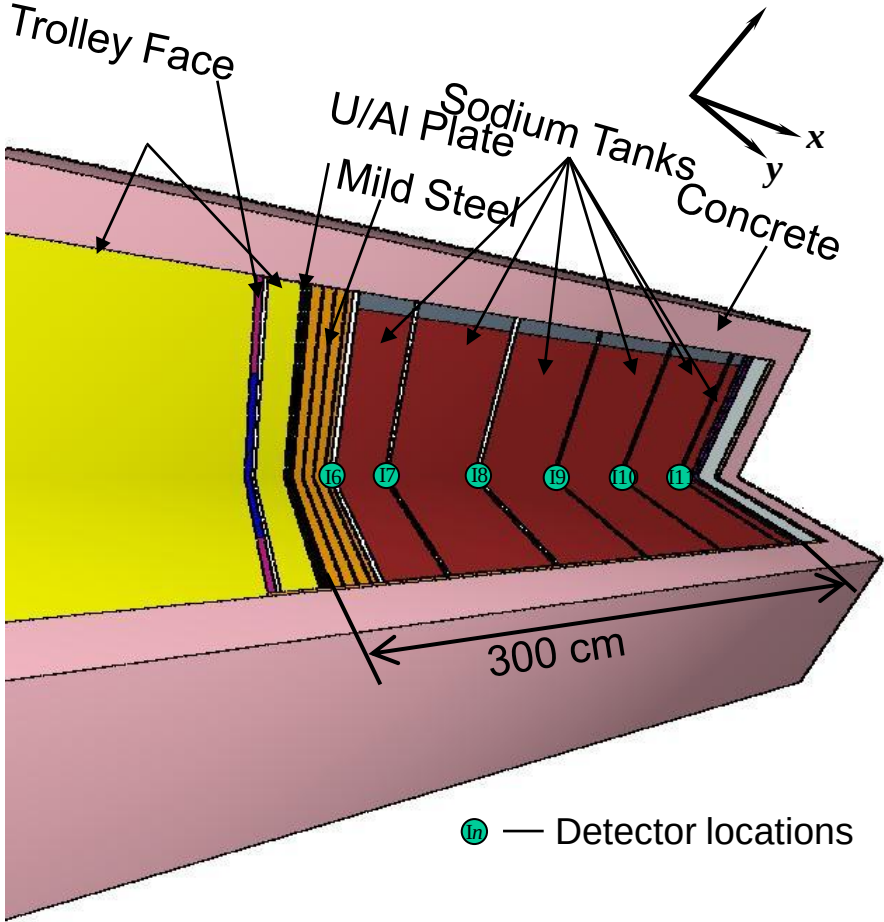
- The Ispra sodium benchmark project was performed under the EURACOS (Enriched URAnium COnverter Source) irradiation facility.
- Measurements with activation detectors were carried out at distances from the source for $^{32}S(n,p)$ and ^{197}Au (n,γ) in order to analyze fast and epithermal neutron attenuations.



JANUS-8 Sodium Propagation Experiment

- The JANUS Phase 8 experiments were performed at the ASPIS facility.
- The neutron attenuations of several different detectors were analyzed and in particular for the following reaction rates: $^{32}S(n,p)^{32}P$, $^{103}Rh(n,n')^{103m}Rh$, $^{197}Au(n,\gamma)^{198}Au$, and $^{55}Mn(n,\gamma)^{56}Mn$.





Question

- **How to establish a protocol for sharing information on experiments within SG39?**
  - A partner volunteers for a specific experiment and provides all the C/Es (and associated sensitivity coefficients) using different cross section data sets (very work intensive)
  - A partner volunteers for a specific experiment and provides only the associated model (MCNP?) and experimental results
  - ?