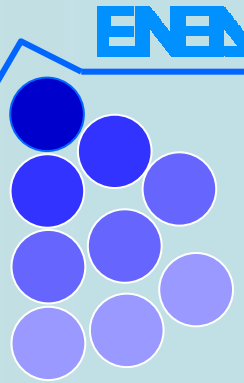
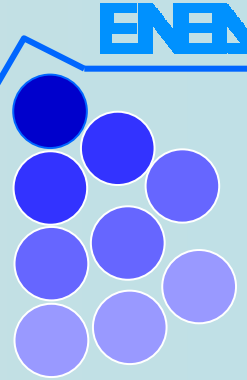


Ongoing and Short Term Activities

S. Monti – R. Rosa - M. Carta



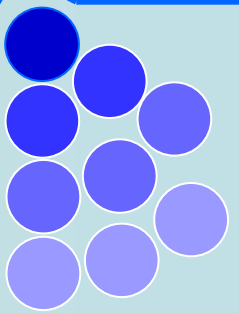
TRIGA-RC1 related activities

- Design Report
- Experiments in TRIGA – Casaccia

ECATS

- Loan of instrumentation
- Experiment interpretation

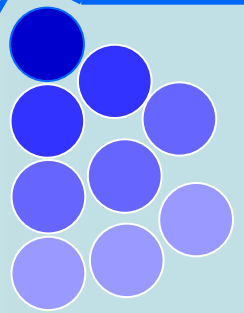
Experiments in TRIGA - Casaccia



TRIGA
Reactor

- Neutron Sources purchasing
- Absorber Oscillator
- Source Oscillator
- SC-2 completion
- Piccolo-MICROMEGAS test
- Positive reactivity transients

Experiments in TRIGA - Casaccia

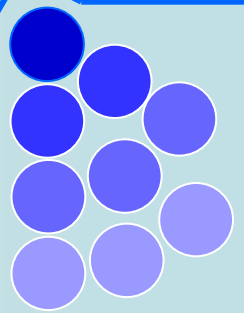


TRIGA
Reactor

Neutron sources

- 1 Cf-252 with ~1.5 · 10^{6} n·cm^{-2}·s^{-1}
- DT tube with 2.0 · 10^{8} n·cm^{-2}·s^{-1} available after recovery
- 3 more DT tubes will be available in September

Experiments in TRIGA - Casaccia



TRIGA
Reactor

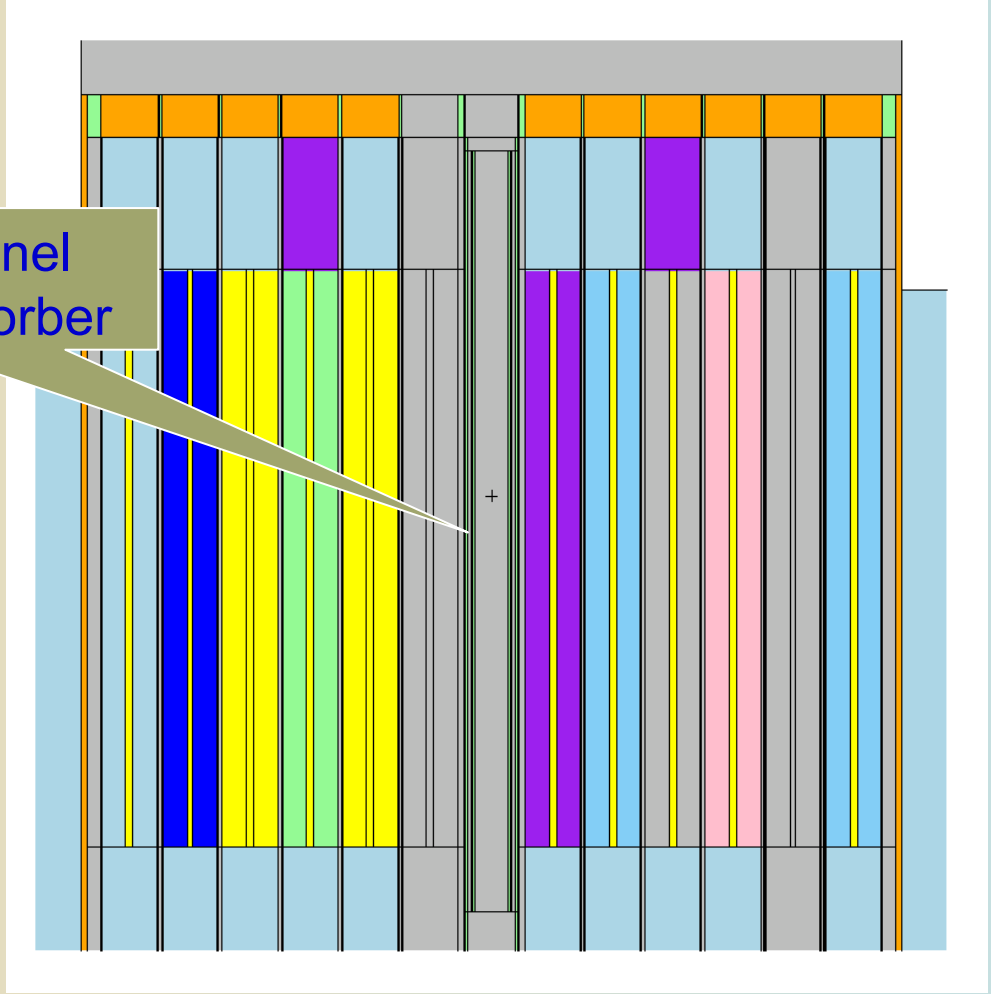
Absorber Oscillator

Main Features

- 2 internal 90°sectors rotating Cd adsorber
- 2 external 90°sectors fixed Cd adsorber
- Regulating rotation frequency up to ~ 40 Hz
- Frequency detection
- Availability: beginning of May

Experiments in TRIGA - Casaccia

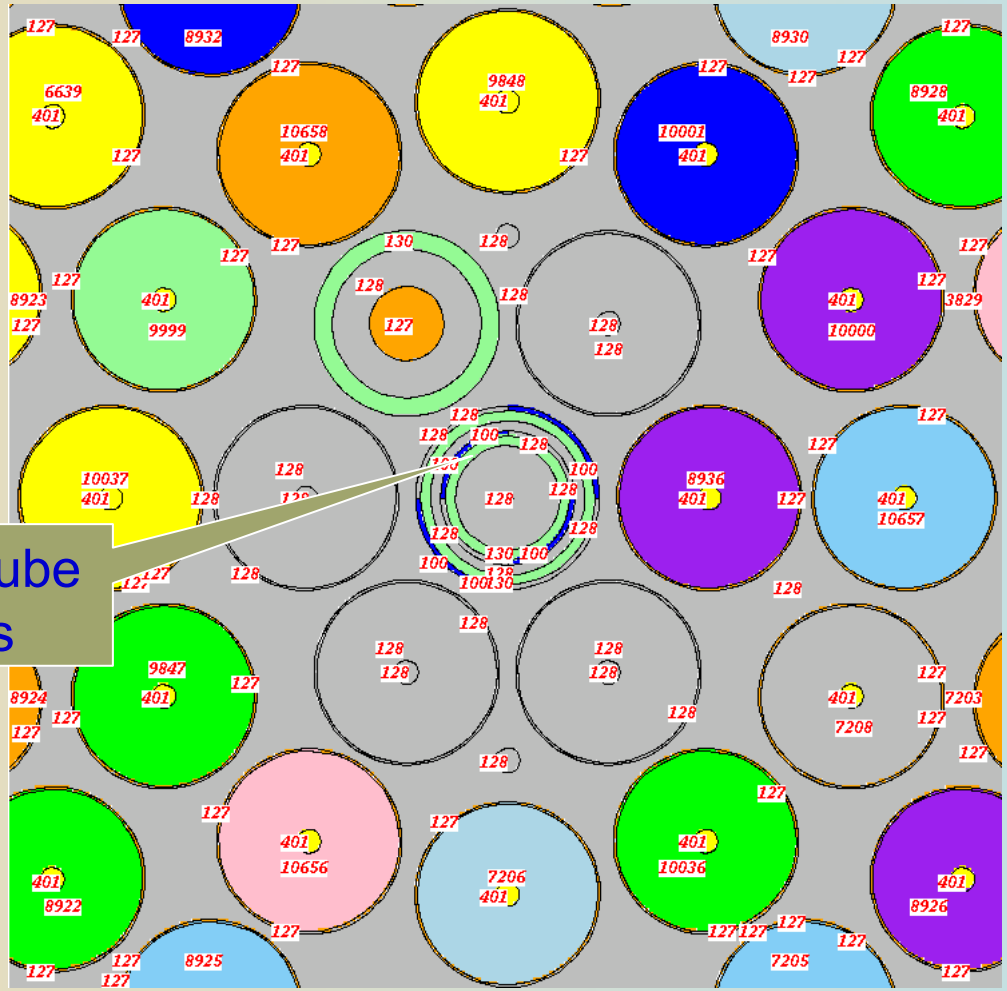
Absorber Oscillator - Principle



TRIGA
Reactor

Experiments in TRIGA - Casaccia

Absorber Oscillator - Principle

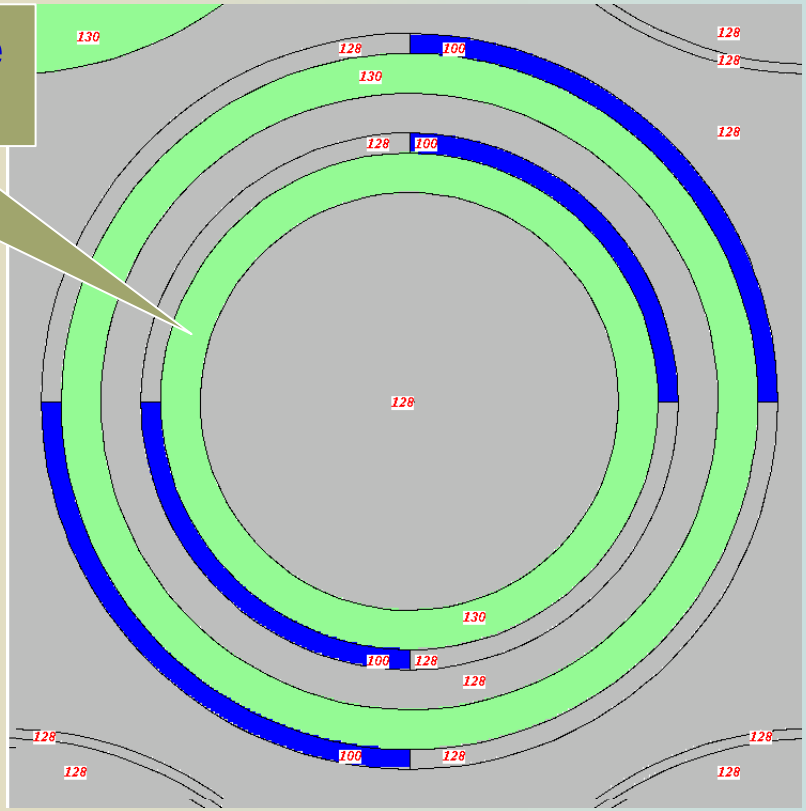


TRIGA
Reactor

Experiments in TRIGA - Casaccia

Absorber Oscillator - Principle

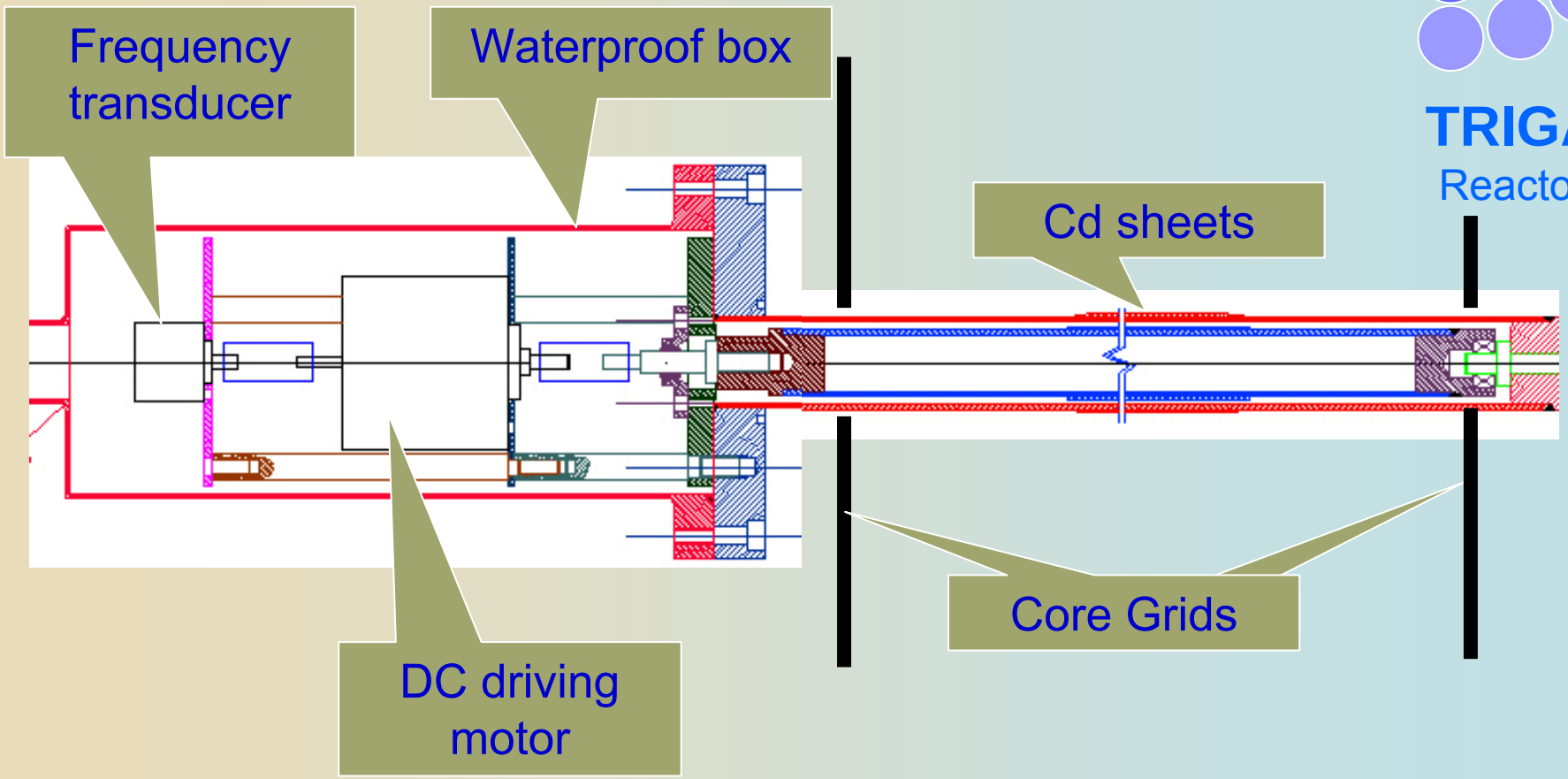
Inner Al rotating tube
With Cd sheets



TRIGA
Reactor

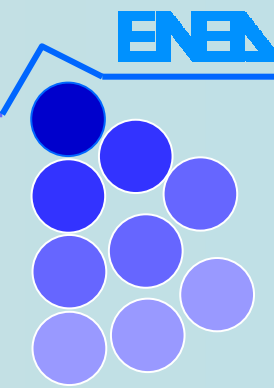
Experiments in TRIGA - Casaccia

Absorber Oscillator - Design



TRIGA
Reactor

Experiments in TRIGA - Casaccia

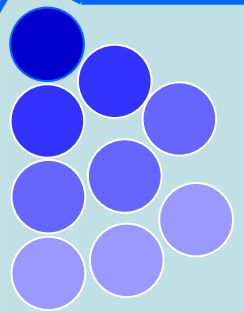


Absorber Oscillator

Expected Reactivities (MCNP)

- Structural materials: ~ 800 pcm
- Δρ : ~ 80±30 pcm

Experiments in TRIGA - Casaccia



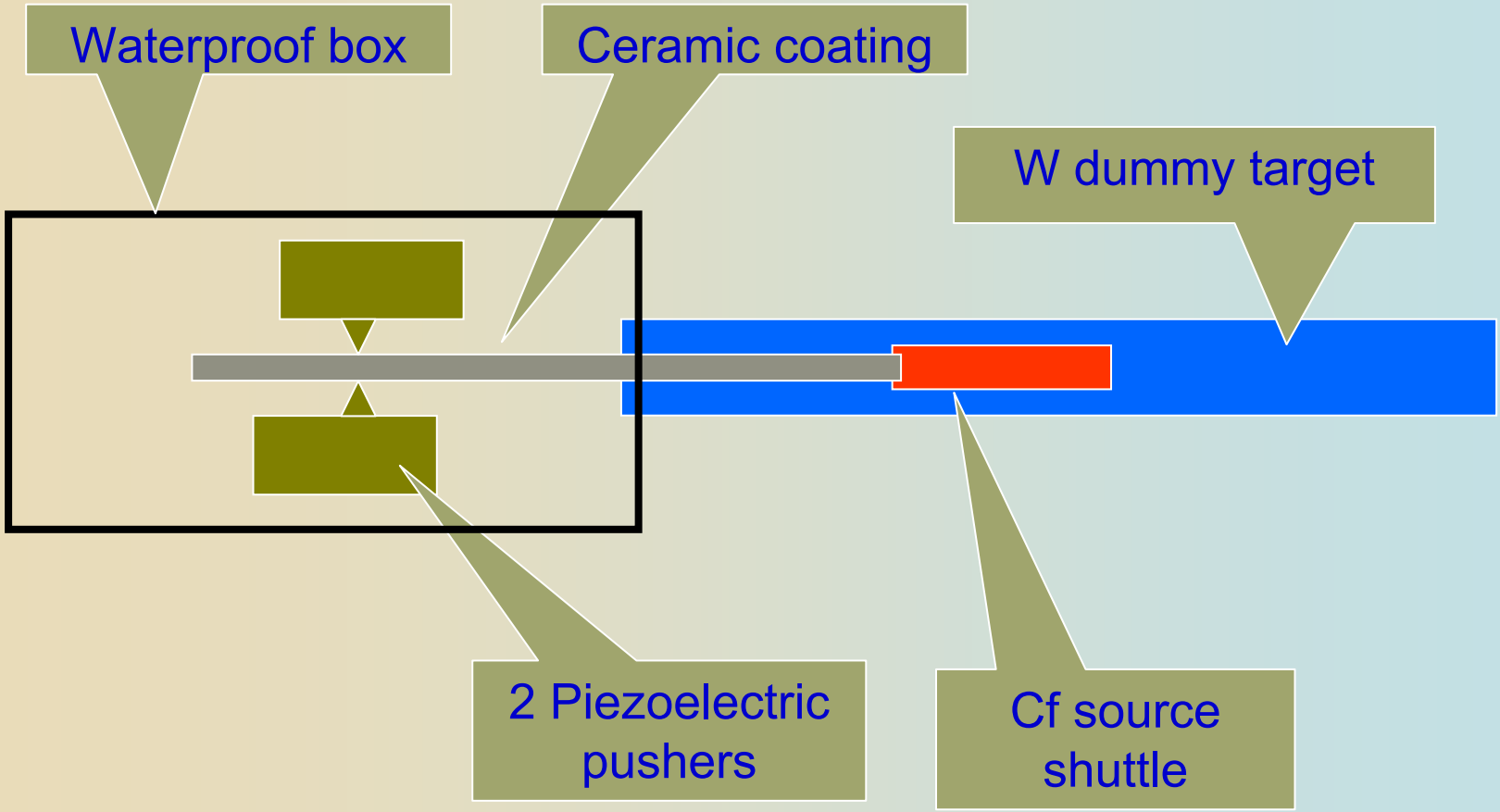
Source Oscillator

Main Features

- Vertical displacement of the Cf source
- Shuttle inserted in the W-target dummy
- Regulating frequency up to 2 Hz @ 20 cm of displacement
- Frequency and position detection
- Availability: end of May

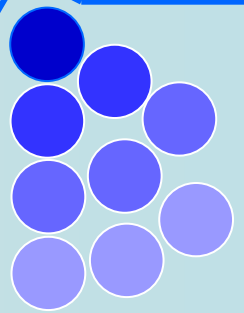
Experiments in TRIGA - Casaccia

Source Oscillator - Layout



TRIGA
Reactor

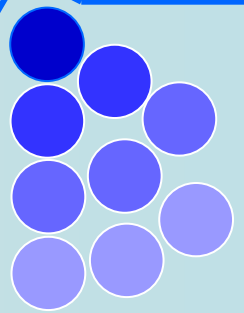
Experiments in TRIGA - Casaccia



Measurements Schedule

- Mid May
  - measurements with DT
  - absorber oscillation
- July
  - source oscillation
  - flux mapping with Fast-rabbit
- September
  - completion Flux mapping with Fast-rabbit

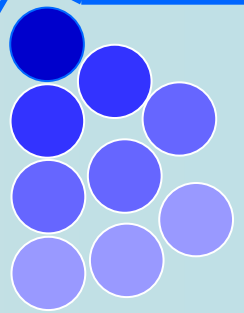
Experiments in TRIGA - Casaccia



Piccolo - MICOMEGAS

- June: special transport of the detectors from Cadarache to Casaccia
- May-July: workshop activities for detector waterproof holder (CEA and ENEA)
- October
  - –Measurements in SC0
  - –Measurements with DT

Experiments in TRIGA - Casaccia



Positive reactivity transients

- Simultaneous acquisition, during reactivity transients, of:
  - Water temperature distribution
  - Fuel temperature
  - Reactor Power (from linear channel)
  - Reactivity (with digital reactimeter if available)

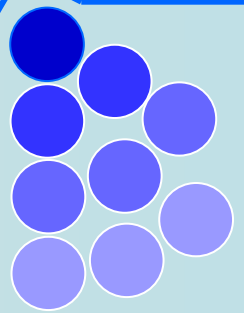
Experiments in TRIGA - Casaccia

Overall workplan

	May		June		July		Sept.		Oct.		Nov.	
Cd oscillator		■										
Cf oscillator					■							
SC2 completion			■	■			■	■				
PICCOLO									■	■		
Reactivity transients												■

TRIGA
Reactor

RACE: Loan of instrumentation

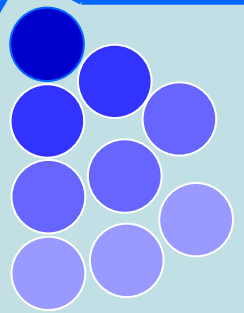


Several TRIGA special devoted detectors and devices purchased or manufactured for TRADE

- #10 Photonis FC (2 sensibilities)
- Special TRIGA Fuel Element allowing FC insertion (only if considered as fresh fuel)
- Cf-252 source
- Un-used DT tube/s (with seller prescriptions)
- Cd rotating oscillator
- Cf displacing device
- Dummy target

Experiment Assistance

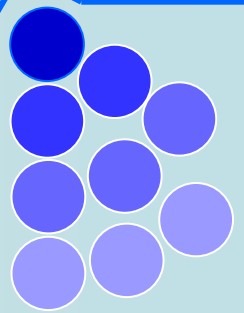
TRADE: Experiment Interpretation



TRIGA
Reactor

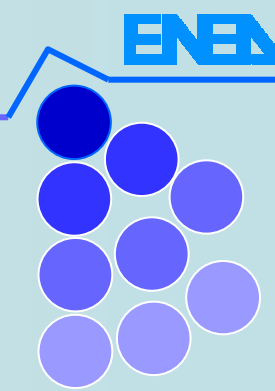
1) Huge experimental data base avaiable
2) Last experiments in TRIGA-RC1 should be carefully selected for interpretation in view of their representativity for ECATS
3) Interpretation effort should be concerted and shared among different Organizations

ECATS: Experiment Interpretation



- Calculation Methodologies developed by ENEA in the TRADE frame:
  - MSM Factor calculations
  - Temperature dependent cross-sections generation for kinetics/dynamics neutron analysis
- Such methodologies can be implemented and applied to core analyses of interest for ECATS

ECATS: Experiment Interpretation



- ENEA can contribute to:
  - Static neutron/gamma analysis by deterministic and Monte Carlo calculations
  - Kinetics analysis by Monte Carlo codes
  - Kinetics/dynamics analysis by deterministic codes developed jointly with Politectnico di Torino