



tapirō

TARATURA PILA RAPIDA A POTENZA ZERO

RSV TAPIRO RESEARCH NUCLEAR REACTOR

THE HEART OF FAST NEUTRON RESEARCH IN ITALY

The **RSV TAPIRO** reactor (TAratura PIla Rapida potenza Zer0) is a fast neutron research reactor operated by ENEA at the Casaccia Research Center in Rome. Commissioned in 1971, it was designed to support national fast reactor programs and still represents a strategic infrastructure for research, experimentation, component qualification and specialized training.

Main features

- Fast neutron source
- Maximum power: 5 kW
- Neutron flux at core center: $\sim 4 \times 10^{12}$ n/cm²/s
- High **spherical symmetry** of neutron flux
- Cylindrical core made of **highly metallic uranium**
- **Copper** reflector
- Biological shielding in **borated concrete**
- **Forced helium** cooling system
- Fuel: **highly enriched Uranium-Molybdenum alloy (HEU)**
- vModerator: **none (fast reactor)**
- The reactor is equipped with a wide system of **horizontal and vertical experimental channels for irradiation and neutron testing**
- **ISO 9001 certified**



APPLICATION AREAS AND RESEARCH ACTIVITIES



Advanced research

- Study of fast neutron damage on materials and components
- Validation of nuclear data and computational codes
- Validation of models for Generation IV reactors



Technological applications

- Study of radiation damage on components for aerospace, accelerators and fusion (ITER)
- Tests for advanced nuclear detectors
- Testing of electronics and sensors in radiation environments



Nuclear medicine

- Microdosimetry studies
- Research on neutron-based cancer treatments



Activation analysis

- Trace element identification (environment, cultural heritage, forensics)

EDUCATIONAL AND FUTURE



TAPIRO is a national reference for:

- University training
- Nuclear plant operator training
- Advanced skills development



Activities

- Practical reactor experience
- Experiment design
- Neutron measurements

Thanks to its unique characteristics, RSV TAPIRO represents a European-level research infrastructure for nuclear safety, advanced fission and fusion systems, component qualification and training.

ENEA Casaccia Research Center

Via Anguillarese, 301
00123, Rome – ITALY

Contact

alfonso.santagata@enea.it

enea.it

