

Milano-Bicocca group: Status report



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Group members

Giovanni Baccolo	(INFN-MIB)	50%
Andrea Barresi	(INFN-MIB)	80%
Antonio Cammi	(PoliMi)	60%
Davide Chiesa	(INFN-MIB)	49%
Andrea Di Ronco	(PoliMi)	50%
Stefano Lorenzi	(PoliMi)	40%
Daniele Merli	(INFN-MIB)	100%
Massimiliano Nastasi	(INFN-MIB)	49%
Ezio Previtali	(INFN-MIB)	30%
Monica Sisti [RL]	(INFN-MIB)	49%

Group activities

Radioactivity measurements
and
Background control coordination

AND

Reactor simulation
and
Antineutrino spectra generation

Radioactivity measurements

- Continuous control of mass production of acrylic panels for the JUNO vessel using the Neutron Activation Analysis (NAA) technique: certification of the bulk radiopurity and, to a lesser extent, of the surface radiopurity.
- Development and fine tuning of the measurement protocol for the certification of the JUNO liquid scintillator radiopurity at 10^{-15} g/g sensitivity.
- Screening of various material of the JUNO detector using gamma spectroscopy and/or NAA.

Background control

- Simulation and study of the radioactive background expected for JUNO.
- Coordination of the background-related activities at collaboration level (mainly related to acrylic production, cleanliness, on-site background control during detector construction).

Antineutrino spectra generation

- PWR nuclear reactor simulations to determine fission rates and their uncertainty as a function of time and depending on reactor boundary conditions (temperature and power distributions).
- Antineutrino spectra generation with “ab initio” calculations.
- Main purpose: benchmark the simulation results with TAO data.

Assegnazioni

Missioni: 7 k€ + 1k€ SJ

2k+1kSJ riunioni e turni in Cina; 1.5k incontri in Europa;
3.5k missioni in Italia (PV e incontri vari); 0k congressi.

Consumo: 10 k€

3k scintillatore liquido; 3k resine scambio ionico;
3k consumabili per laboratori (materiale clean room,
contenitori monouso radiochimica e basso fondo);
2k acidi ultra-puri radiochimica.

Altro Consumo e Altri Servizi: 18 k€

12k per utilizzo reattore PV; 1k tagli laser acrilico;
5k per LN2 (funzionamento HPGe)

Trasporti: 2 k€

1.5k materiale irraggiato; 0.5k oneri spedizioni da Cina.

TOTALE: 37+1 k€

Richieste

Missioni: 42 k€

22k riunioni e turni in Cina; 5k incontri in Europa;
11k missioni in Italia (PV e incontri vari); 4k congressi.

Consumo: 13 k€

3k scintillatore liquido; 3k resine scambio ionico;
3k consumabili per laboratori (materiale clean room,
contenitori monouso radiochimica e basso fondo);
4k acidi ultra-puri radiochimica.

Altro Consumo e Altri Servizi: 20 k€

14k per utilizzo reattore PV; 1k tagli laser acrilico;
5k per LN2 (funzionamento HPGe)

Trasporti: 2 k€

1.5k materiale irraggiato; 0.5k oneri spedizioni da Cina.

TOTALE: 77 k€