

FUNFI-IT - Italian Meeting on Fusion Neutrons for Fission

December 11th, 2024

Centro Ricerche Enrico Fermi | Aula Enrico Fermi
Piazza del Viminale - Roma

FUNFI-IT is the first edition of the Italian workshop dedicated to the physics, technology and engineering of machines where nuclear fusion reactions drive a fission blanket. Such hybrid devices are presently considered for energy generation, fissile fuel production, nuclear waste transmutation and tritium production. FUNFI-IT is organized by ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development), INFN (Italian National Institute for Nuclear Physics), Consortium RFX (National Research Council), Sapienza University of Rome, University of Genoa (UNIGE) and CREF (Enrico Fermi Research Centre).

PROGRAMME

9.30 Opening

A. Dodaro (ENEA) / A. Bracco (CREF) / M. Ripani (INFN) / P. Sonato (RFX) / G. Lomonaco (UNIGE) / R. Gatto (Sapienza University)

Session 1 | Reports on italian and international activities- Chair: M. Ciotti (ENEA)

10.00 Analysis of hybrid reactors international activities and proliferation risks – R. Gatto (Sapienza University)

10.25 Hybrid reactors based on Tokamak devices - F.P. Orsitto (ENEA)

10.45 Hybrid reactors based on Reversed Field Pinch (RFP) devices - R. Piovan (RFX)

11.05 Parametric evaluations for hybrid reactors - S. Murgo (Roma Tre University /ENEA)

11.20 Coffee break

Session 2 | Blankets and tritium production - Chair: R. Piovan (RFX)

11.35 Blankets for Fusion DEMO - S. D'Amico (EURO-fusion)

12.05 Fission blankets for tritium production in hybrid reactors - F. Panza (ENEA)

12.30 Visit to the Fermi Museum - contact persons M. Focaccia and F. Coccetti (CREF)

13.15 Lunch

14.15 Tritium control and handling: major design issues - S. Tosti (ENEA)

Session 3 | New proposals: neutron detectors, control systems and space propulsion - Chair: F. Panza (ENEA)

14.45 Advanced Techniques in Neutron and Tritium Detection - F. Cordella (ENEA)

15.00 Control system design for hybrid nuclear reactors - M. Cappelli (ENEA)

15.15 A Fission Fragments model production for astronautical applications - C. Mazzotta (ENEA)

15.30 Coffee break

Session 4 | Discussion on current activities, future perspectives and conclusions - Chair: F.P. Orsitto (ENEA)

15.45 History of research on hybrids and summary of today's contribution - R. Gatto (Sapienza university)

15.55 Future perspectives for hybrid reactors studies - G. Lomonaco (UNIGE)

16.05 ENEA contribution and future perspectives - M. Ciotti (ENEA)

16.15 Contextualization of the program in Italian and European projects - R. Piovan (RFX)

16.25 INFN contribution - M. Ripani (INFN)

16.35 Conclusions and future developments - F.P. Orsitto (ENEA)

17.00 Workshop closing