



IREF23 scientific program

| Sunday 12 th November | |
|----------------------------------|---------------|
| 9:00 – 18:30 | arrival |
| 19:30 – 22:00 | welcome party |

| Monday 13 th November | |
|----------------------------------|--|
| 9:00 – 9:30 | opening |
| 9:30 – 10:00 | "Eni and the fusion challenges" Miriam Parisi , Eni S.p.A. |
| 10:00 – 10:30 | "Overview on the research and development of HTS conductors and irradiation studies within the European DEMO project" Valentina Corato , ENEA – invited talk |
| 10:30 – 11:00 | coffee break |
| 11:00 – 11:30 | "Development of Coated Conductors by IBAD/PLD process suitable for High Field Applications" Yasuhiro Iijima , Fujikura Ltd – invited talk |
| 11:30 – 12:00 | "Research, development and commercialization of coated conductors for fusion application by Faraday Factory Japan" Sergey Lee , Faraday Factory Japan – invited talk |
| 12:00 – 12:30 | "Microstructural landscape and vortex pinning scenarios in REBCO coated conductors prepared at high growth rates" Xavier Obradors , Institut de Ciència de Materials de Barcelona – invited talk |
| 12:30 – 13:00 | "Comparative analysis of particle irradiation and second-phase additions effects on the critical current densities of YBa ₂ Cu ₃ O ₇ single crystals, thin films, and coated conductors" Leonardo Civile , Los Alamos national Laboratory - retired |
| 13:00 – 14:30 | lunch |
| 14:30 – 15:00 | "Radiation Challenges in Compact High-Temperature Superconducting Tokamaks" Stefano Segantin , MIT – invited talk |
| 15:00 – 15:30 | "Neutron and secondary particle analysis in PHITS of HTS components for compact fusion reactors" Federico Ledda , Politecnico di Torino |
| 15:30 – 16:00 | "The light side and the dark side of irradiation" Stuart Wimbush , UKAEA – invited talk |
| 16:00 – 16:30 | coffee break |
| 16:30 – 17:00 | "Molecular dynamics simulations of radiation damage and recovery in high temperature superconductors" Samuel Murphy , Lancaster University – invited talk |
| 17:00 – 17:30 | "Molecular dynamics investigation of radiation damage in high temperature superconducting tapes for compact fusion reactors" Davide Gambino , Linköping University – invited talk |
| 17:30 – 18:00 | "Quantifying stored energy release in HTS magnets through molecular dynamics" Lauryn Kortman , MIT |
| 19:30 – 22:00 | dinner |

| Tuesday 14 th November | |
|-----------------------------------|--|
| 9:00 – 9:30 | "X-ray absorption spectroscopy as a tool for characterising irradiation damage in REBCO coated conductors" Susannah Speller , University of Oxford |
| 9:30 – 10:00 | "Combining experimental and simulated X-ray absorption spectra to understand irradiation damage in REBCO coated conductors" Rebecca Nicholls , University of Oxford – invited talk |
| 10:00 – 10:30 | "Effect of irradiation temperature on degradation in REBCO tapes" David Fischer , MIT – invited talk |
| 10:30 – 11:00 | coffee break |
| 11:00 – 11:30 | "How can we understand the effects of in-service radiation damage in REBCO for fusion magnets?" Chris Grovenor , University of Oxford – invited talk |
| 11:30 – 12:00 | "In-situ critical current measurements of REBCO coated conductors during gamma irradiation" Simon Chislett-McDonald , UKAEA |

| | |
|---------------|---|
| 12:00 – 12:30 | "Can beam heating alone explain the suppression of J_c during ion-irradiation of REBCO coated-conductors?" Alexis Devitre , MIT |
| 12:30 – 13:00 | "Finite Element Modeling for Revealing the Thermal Response of 2G HTS tapes in Operando Conditions" Simone Sparacio , Politecnico di Torino |
| 13:00 – 14:30 | lunch |
| 14:30 – 17:00 | round table |
| 18:00 – 20:00 | excursion |
| 20:00 – 22:00 | dinner |

| | |
|-------------------------------------|---|
| Wednesday 15 th November | |
| 9:00 – 9:30 | "Impact of neutron induced ex-situ defects on the properties of coated conductors and their thermal stability" Raphael Unterrainer , Technische Universität Wien – invited talk |
| 9:30 – 10:00 | "Annealing cryogenically irradiated REBCO with current pulses" Zoe Fisher , MIT |
| 10:00 – 10:30 | "Irradiation of YBCO thin films and REBCO tapes: effect of 14.1 MeV fusion neutron and gamma rays" Valentina Pinto , ENEA |
| 10:30 – 11:00 | coffee break |
| 11:00 – 11:30 | "UK National Ion Beam Centre" Nianhua Peng , University of Surrey |
| 11:30 – 12:00 | "The Frascati Neutron Generator: fast neutrons for fusion and beyond" Antonino Pietropaolo , ENEA |
| 12:00 – 12:30 | "The Calliope gamma irradiation facility" Adriano Verna , ENEA |
| 12:30 – 13:00 | "HTS fusion magnet development and irradiation considerations" Greg Brittles , Tokamak Energy Ltd – invited talk |
| 13:00 – 14:30 | lunch |
| 14:30 – 15:00 | "Au ion irradiation of $GdBa_2Cu_3O_y$ coated conductors: superconducting properties and induced defects" Toshinori Ozaki , Kwansai Gakuin University – invited talk |
| 15:00 – 15:30 | "Heavy ions irradiation for pinning landscape modification of YBCO films with columnar secondary phase" Francesco Rizzo , ENEA |
| 15:30 – 16:00 | "STEP's plan for understanding REBCO coated conductors in the Fusion Environment" William Iliffe , UKAEA |
| 16:00 – 16:30 | coffee break |
| 16:30 – 18:30 | free time |
| 19:30 – 22:00 | social dinner |

| | |
|------------------------------------|--|
| Thursday 16 th November | |
| 9:00 – 9:30 | "Critical current density in HTS tapes for fusion applications: Experiments, TDGL and Irradiation" Damian Hampshire , Durham University – invited talk |
| 9:30 – 10:00 | "Identifying effective pinning defects and regimes using critical currents in pulsed fields" Boris Maiorov , Los Alamos National Laboratory – invited talk |
| 10:00 – 10:30 | "Does the shift to HTS magnets for compact fusion reactors call for the development of a new generation of numerical tools?" Laura Savoldi , Politecnico di Torino |
| 10:30 – 11:00 | coffee break |
| 11:00 – 12:30 | round table |
| 12:30 – 13:00 | closure |
| 13:00 – 14:30 | lunch |
| 14:30 – 22:00 | departure |