

1° Conferenza Italiana sui Plasmi

Frascati, 3-6 Febbraio 2026

Aula Bruno Brunelli

Centro Ricerche ENEA Frascati



AGENDA

13:00 **ACCOGLIENZA DEI PARTECIPANTI**

MARTEDÌ 3 FEBBRAIO

13:45 **Apertura lavori**

Alessandro Dodaro (ENEA), Stefano Fabris (CNR), Daniela Grasso (CNR-ISC)

14:00 **Overview of physics and technology of magnetic fusion in Italy**

Paola Batistoni (ENEA), Piero Martin (Università di Padova - Consorzio RFX - DTT)

14:45 **The DTT project: status and opportunities for the Italian scientific community**

Francesco Romanelli (Università degli studi di Roma Tor Vergata, DTT)

15:15 **Connecting the edge to the divertor in tokamak plasmas**

Marco Cavedon (Università di Milano - Bicocca)

15:45 **Fusion power measurement through neutron-independent DT gamma-ray spectroscopy**

Giulia Marcer (CNR-ISTP)

16:05 **Pausa Caffè**

16:25 **An Overview of Current Research in Space and Astrophysical Plasmas**

Elena Amato (INAF), Sergio Servidio (Università della Calabria)

17:10 **Astrophysical jet modeling**

Paola Rossi (INAF)

17:40 **Energization and transport of cosmic rays in astrophysical plasmas**

Pasquale Blasi (GSSI)

18:10 **Revisiting the X-Ray Polarization of the Shell of Cassiopeia A Using Spectropolarimetric Analysis**

Alessandra Mercuri (Università della Calabria)

MERCOLEDÌ 4 FEBBRAIO

- 8:50** **Low Temperature Plasmas: a bridge between Chemistry and Physics**
Maria Rutigliano (CNR-ISTP), Vanni Antoni (CNR-ISTP, Consorzio RFX)
- 9:35** **Dynamics of a two-dimensional fluid vortex explored via magnetized electron plasmas**
Giancarlo Maero (Università degli Studi di Milano)
- 10:05** **Plasmas for Physical Vapor Deposition of nanostructured materials**
David Dellasega (Politecnico di Milano)
- 10:35** **Commemorazione di Mario Capitelli**
Olga De Pascale (CNR-ISTP)
- 10:45** ***Pausa Caffè***
- 11:05** **Overview of Laser/Beam Plasma Interaction and Inertial Confinement Fusion Research and Developments in Italy**
Fabrizio Consoli (ENEA), Anna Giribono (INFN)
- 11:50** **Biomedical applications of laser-driven particle beams: status and challenges**
Giada Petringa (INFN-LNS)
- 12:20** **Advancing Laser-Plasma Radiation Sources for Materials Characterization in the field of Cultural Heritage Analysis**
Francesco Mirani (Politecnico di Milano)
- 12:40** **Overview of CIRA development in Plasma Space Propulsion**
Francesco Battista (Centro Italiano Ricerche Aerospaziali), Mario Panelli (Centro Italiano Ricerche Aerospaziali)
- 13:00** ***Pranzo***
- 14:00** **SESSIONE POSTER 1 - MAGNETIC FUSION CONFINEMENT PLASMAS E BEAM PLASMAS & INERTIAL FUSION**
- 14:00** ***Pausa Caffè***
- 15:40** **Laser-Driven Electron and Ion Acceleration: Established Results and Progress**
Martina Salvadori (CNR)
- 16:10** **Exploring the solar wind: a journey through in-situ observations**
Raffaella D'Amicis (INAF)
- 16:40** **On the possible occurrence of Bolgiano scaling in equatorial plasma bubbles/depletions**
Giuseppe Consolini (INAF)
- 17:00** **TAVOLO PROGETTUALE TEMATICO ASTRO**
Panelist: *Francesco Berrilli (Sun cubE onE), Martina Cardillo (LHAASO and Cherenkov detectors), Silvano Fineschi (Space it Up!, Proba-3, Solar Orbiter), Maria Federica Marcucci (HENON/Plasma Observatory), Fabio Reale (MUSE), Francesco Valentini (Plasma Observatory)*
Moderatore: *Marco Stangalini (ASI)*
- 17:00** **TAVOLO PROGETTUALE TEMATICO LTP**
Panelist: *Paolo Ambrico (CNR), Andrea Cristofolini (Università di Bologna), Romolo Laurita (Università di Bologna), Emilio Martines (Università degli Studi Milano Bicocca), Luca Matteo Martini (Università di Trento), Fabrizio Scortecchi (Aerospazio Tecnologie Srl, Siena)*
Moderatori: *Francesco Taccogna (CNR), Eugenio Ferrato (Scuola Superiore Sant'Anna)*
- 20:00** ***Cena sociale***
Ristorante Zarazà - Via Regina Margherita, 45, Frascati

GIOVEDÌ 5 FEBBRAIO

- 9:00** **The EuPRAXIA project: goals and user facility**
Lucio Crincoli (INFN)
- 9:30** **Plasma physics in negative ion sources and challenges for MeV neutral beam injectors for fusion**
Antonio Pimazzoni (Consorzio RFX)
- 10:00** **Fusion energy research with high power lasers in Europe: the HiPER+ programme**
Petra Koester (CNR-INO)
- 10:20** ***Pausa Caffè***
- 10:40** **Spettroscopia come finestra sul plasma: diagnosi e trasporto delle impurezze**
Lorella Carraro (Consorzio RFX)
- 11:10** **PROTO-SPHERA: a “bridge” between laboratory and astrophysical plasmas**
Paolo Micozzi (ENEA)
- 11:30** **TAVOLO FORMAZIONE**
Coordinato da Alessandro Maffini (Politecnico di Milano)
- 13:00** ***Pranzo***
- 14:00** **SESSIONE POSTER 2 - SPACE & ASTROPHYSICAL PLASMAS E LOW TEMPERATURE AND DUSTY PLASMAS**
- 14:00** ***Pausa Caffè***
- 15:40** **Advances on Laser-Plasma-Interaction Diagnostics for Inertial Confinement Fusion and Particle Acceleration**
Francesco Filippi (ENEA)
- 16:10** **From plasma physics to electric propulsion: magnetic reconnection for future space thrusters**
Giulia Becatti (Università di Pisa)
- 16:40** **Simulation of Low Temperature, Weakly Ionized Plasmas with applications to electric power industry**
Andrea Barbareschi Villa (Ricerca Sul Sistema Energetico, RSE S.p.A.)
- 17:00** **TAVOLO PROGETTUALE PLASMA BEAM**
Panelist: *Stefano Atzeni (FOCUSED Energy), Dimitri Batani (University of Bordeaux), Marco Borghesi (Queen’s University), Enrica Chiadroni (Sapienza Università di Roma), Alessandro Cianchi (Università degli studi di Roma Tor Vergata), Massimo Ferrario (INFN-LNF), Leonida Gizzi (CNR-INO), Alessandro Maffini (Politecnico Milano), Daniele Margarone (ELI-ERIC), Mauro Migliorati (Sapienza Università di Roma), Alessio Morace (Osaka University), Andrea Mostacci (Sapienza Università di Roma), Matteo Passoni (Politecnico Milano), Luca Volpe (Universidad Politecnica de Madrid)*
Cordinatore: *G. A Pablo Cirrone (INFN-LNS)*
- 17:00** **TAVOLO PROGETTUALE TEMATICO MAGNETIC CONFINEMENT FUSION PLASMAS**
Panelist: *Nicola Vianello (EUROfusion), Paola Batistoni (Partnership pubblico-private in ambito EUROfusion), Franco Porcelli (Cina), Francesco Romanelli (Università degli studi di Roma Tor Vergata, DTT), Francesco Pegoraro (Accademia Nazionale dei Lincei)*
Moderatrice: *Olga De Pascale (CNR-ISTP)*

VENERDÌ 6 FEBBRAIO

- 9:00** Theory and simulation of phase space transport in burning plasmas
Matteo Valerio Falessi (ENEA)
- 9:30** Plasma start-up in tokamaks: experimental studies and modelling
Daria Ricci (CNR-ISTP)
- 10:00** MHD simulations of expanding magnetic clouds in a turbulent interplanetary plasma: virtual spacecraft analysis of magnetic cloud coherence and structure
Simone Landi (Università di Firenze)
- 10:20** ***Pausa Caffè***
- 10:40** Energy conversion and dissipation in nearly-collisionless, turbulent space and astrophysical plasmas
Oreste Pezzi (CNR-ISTP)
- 11:10** The Trapped Electrons Experiment T-REX
Francesco Romano (EPFL-SPC)
- 11:30** ***Tavola rotonda***
Quale futuro?
In questo spazio desideriamo riflettere insieme sul percorso intrapreso nel 2023 con il workshop al FISmat. Quali obiettivi siamo riusciti a raggiungere e quali azioni future intendiamo intraprendere?
La CIP rappresenta solo un tassello di un quadro più ampio, che vorremmo affrontare collettivamente, raccogliendo idee concrete e condivise dai partecipanti.
Conducono: *Daniela Grasso (CNR-ISC) e Matteo Passoni (Politecnico di Milano)*
- 12:30** ***Chiusura dei lavori***

CIP 2026 | SESSIONE POSTER 1

Magnetic Fusion Confinement Plasmas e Beam Plasmas & Inertial Fusion

- P. 1** **E. Acampora, R. Ambrosino**, *Overview of the DTT plasma control system*
- P. 2** **G. Alberti**, *Overview of divertor erosion and tungsten core plasma contamination studies in the DTT tokamak*
- P. 3** **E. Alessi**, *Disruptions induced by poloidally asymmetric radiation at JET*
- P. 4** **M. Alonzo**, *Analysis of the angular distribution of TNSA-accelerated protons in high repetition rate laser-plasma experiments*
- P. 5** **K. Ambrogioni**, *Simulation of intense-laser interaction with nanostructured materials: challenges and perspectives*
- P. 6** **L. A. Gizzi**, *Recent developments at the Intense Laser Irradiation Laboratory*
- P. 7** **F. Avella**, *LP4PIC: Laser pulse reconstruction from experimental measurements to initialize PIC simulations*
- P. 8** **G. Azzalin**, *Particle-In-Cell modeling of Inductively Coupled Plasmas for the ITER NBI source prototypes*
- P. 9** **D. Banerjee**, *NIMROD MHD simulation of axisymmetric modes observed in the DT plasma of JET*
- P. 10** **F. Porcelli**, *Vertical Displacement Oscillatory Modes driven unstable by fast particles: a new fast ion instability of tokamak plasmas*
- P. 11** **P. Buratti, B. Moshref**, *Wave emission by relativistic electrons in FTU tokamak and a possible astrophysical implication*
- P. 12** **S. Cappello**, *3D nonlinear MHD studies at Consorzio RFX: Achievements and challenges in macroscopic modelling of fusion plasmas*
- P. 13** **I. Casiraghi**, *Towards divertor-relevant conditions in BiGyM: insights from SOLPS-ITER modelling*
- P. 14** **M. Cavenago**, *Advances in selected accelerator ion source design and theory with multiphysics tools*
- P. 15** **S. Cesaroni**, *Plasma diagnostics by means of CVD diamond detector arrays*
- P. 16** **F. Cianfrani**, *Caratterizzazione della turbolenza vicino al punto a X di un tokamak*
- P. 17** **S. Cipelli**, *Nanosecond laser ablation modeling as support activity for LIBS measurements*
- P. 18** **M. Cipriani**, *Experiments and simulation on high-power laser irradiation of 3D-printed microstructures*
- P. 19** **G. Fiore**, *On an analytical optimization of plasma density profiles for downramp injection in LWFA*
- P. 21** **V. Fusco**, *MHD Stability Analysis and Preliminary Studies of Alfvénic Modes in DTT*
- P. 22** **F. Gaspari**, *Erosion behavior of boron-based nanostructured materials exposed to fusion-relevant deuterium plasma*
- P. 23** **L. G. Tedoldi**, *Absolute measurements of 14MeV neutrons with diamond detectors*
- P. 24** **D. Grasso**, *Magnetic reconnection studies @ISC-Torino*
- P. 25** **B. Grau**, *Detection of electromagnetic pulses produced by intense laser-matter interaction from parabola modulations in Thomson Spectrometry*
- P. 26** **D. Gregocki**, *Non-destructive dose monitoring in a harsh laser-plasma environment for medical applications*
- P. 27** **P. Koester, L. Labate**, *Toward novel approaches to radiotherapy with laser-driven Very High Energy Electron beams*
- P. 28** **P. Mantica**, *Core-edge integrated predictions of DTT scenarios from early phases to full power operations*
- P. 29** **L. Manzoni**, *Laser-Driven Electromagnetic Pulses for the Manipulation of Charged Beams*
- P. 30** **C. Marchetto**, *Transport studies @ ISC-Torino*
- P. 31** **A. Mastrogirolamo**, *Impact of triangularity on edge plasma transport and detachment: a SOLPS-ITER study*
- P. 32** **L. Melaragni**, *Overview of Disruption Plasma Scenario Simulations and Advances in Pellet-Based Mitigation Technologies for DTT*

- P. 33 S. Molisani**, *Design of DIVO: a new diagnostic system to evaluate the ion velocity distribution functions in fusion devices*
- P. 34 F. Napoli**, *Automated Design of Field-Reversed Configurations via Genetic Algorithms and Free-Boundary MHD Modeling*
- P. 35 M. Notazio**, *Preliminary Assessment of Magnetic Diagnostics and Equilibrium Reconstruction for the TRUST Tokamak*
- P. 36 F. P. Orsitto**, *A neutron source based on spherical Tokamak*
- P. 37 E. Peluso**, *Radiated power and radiation density profiles characterizing high emissivity regions during DTE3*
- P. 38 L. Bonalumi**, *Optimization of the ECH/CD launching system for NTM control in DTT full power scenario*
- P. 39 G. Ramogida**, *Plasma disruptions modelling and simulation in DTT*
- P. 40 A. R. Cintora de la Cruz**, *Magnetic fluctuations in fusion relevant plasmas in the RFX-mod device*
- P. 41 D. Rigamonti**, *Single crystal diamond detectors for nuclear spectroscopy measurements on DT plasmas at JET*
- P. 42 M. Romé**, *A relativistic bounce-averaged Fokker-Planck code for stellarators and tokamaks*
- P. 43 R. Rossi**, *Solving Plasma Forward and Inverse Problems with Physics-Informed Neural Networks in Nuclear Fusion*
- P. 44 N. Rutigliano**, *TokaLab: A Modular Virtual Tokamak Laboratory for Education, Open Access, and Algorithm Benchmarking*
- P. 45 L. Scarivaglione**, *A New Third-Order Law for Electrostatic Turbulence and Blob Transport in Fusion Devices*
- P. 46 J. Scionti**, *Helicon wave propagation in BiGyM*
- P. 47 M. Sciscio**, *Generation of alpha particles by p+11B fusion driven by high-repetition-rate PW-power lasers*
- P. 48 D. Simeoni**, *Finite-Temperature Effects and Warm-Fluid Modeling in Plasma Wakefield Acceleration*
- P. 49 C. Tuccari**, *Modelling helium plasma-wall interaction: tungsten erosion and impurity transport in the ASDEX Upgrade tokamak*
- P. 50 S. Vlachos**, *Single-shot spectrometer with pointing angle correction for laser-driven electron beams featuring pointing instability and transverse inhomogeneity*
- P. 51 I. Wyss**, *Analysis of the X-point Radiation in seeded plasmas in JET through tomography reconstruction*

CIP 2026 | SESSIONE POSTER 2

Space & Astrophysical Plasmas e Low Temperature and Dusty Plasmas

- P. 1** **D. Belardinelli**, *Derivazione di una distribuzione Kappa generalizzata dalle proprietà di scala del vento solare*
- P. 2** **S. Benella**, *Cross-scale coupling between local streamline structures, energy transfer and dissipation in space plasma turbulence*
- P. 3** **F. Berrilli**, *From Photosphere to Corona: Supergranular Magnetic Networks and Coronal Hole Formation*
- P. 4** **D. Borgogno**, *Jet Emission Shaped by MHD Instabilities*
- P. 5** **M. Bugatti**, *Progress in the Development of a Penning Ionization Gauge Against Vacuum Degradation in Tokamak Cryostats*
- P. 6** **E. Capelli**, *Modeling centrifugal instabilities in laboratory plasma*
- P. 7** **G. Celebre**, *Phase-Space Dynamics of Electron Acoustic Turbulence in 2D-2V Inhomogeneous Plasmas*
- P. 8** **F. Cichocki**, *Particle-in-cell modeling of the inductive discharge inside the drivers of negative ion sources*
- P. 9** **O. De Pascale**, *Laser-induced breakdown spectroscopy: background and new applications*
- P. 10** **D. Del Sarto**, *Modelling of low collision plasmas at the IJL - Nancy (France): kinetic phenomena and energy conversion processes*
- P. 11** **P. Buratti**, *Magnetic reconnection studies in collisionless relativistic plasmas*
- P. 12** **L. Del Zanna**, *Properties of relativistic MHD turbulence in synchrotron emitting astrophysical sources*
- P. 13** **S. Fabiani**, *Unveiling particle acceleration in solar flares: The crucial role of X-ray polarimetry and future Italian space missions*
- P. 14** **M. Cavenago**, *Status of energy recovery, cooler and ion source experiments*
- P. 15** **G. Ficarra**, *Homogenous plasma turbulence measurements in strong gravitational fields*
- P. 16** **E. Gaspari**, *Sull'evoluzione temporale delle specie cariche e non cariche durante l'accensione di un plasma RF-ICP di una miscela di azoto ossigeno e argon*
- P. 17** **V. Giannetti**, *Generazione di plasma atmosferico nei sistemi di propulsione elettrica spaziale "air-breathing" per orbite molto basse.*
- P. 18** **L. Giovannelli**, *From Photospheric Convection to Coronal Heating: A Large-Domain SOC-Inspired N-Body Simulation of Quiet-Sun Magnetic Reconnection*
- P. 19** **G. Giri**, *Modelling the longest plasma jets in the Universe with magneto-hydrodynamic simulations*
- P. 20** **M. Imbrogno**, *Kinetic Turbulence and Magnetic Reconnection in Relativistic Multispecies Plasmas*
- P. 21** **S. Landi**, *Contribution of the non-gyrotropy pressure strain terms in the energy conversion at ion scales: Results from 3D hybrid simulations.*
- P. 22** **M. Lauriola**, *Numerical investigation of the Microwave Electrothermal Thruster cavity and plasma at Politecnico di Milano*
- P. 23** **E. M. Fortugno**, *Impact of Distinct Viscous and Resistive Dissipation on the MHD Energy Cascade*
- P. 24** **L. M. Martini**, *Unveiling the role of the catalyst support in silver-enhanced plasma ammonia synthesis*
- P. 25** **A. Mercuri**, *Particle Acceleration and Transport in Young Supernova Remnants*
- P. 26** **A. Micciani**, *Design of an NH₃ AF-MPDT for Bimodal Nuclear Propulsion*
- P. 27** **P. Minelli**, *Particle-in-Cell model of nanosecond point-to-plane high-pressure discharge*
- P. 28** **L. Neri**, *Particle-in-Cell Simulation of ECR Ion Sources*
- P. 29** **G. Nigro**, *Stochastic Resonance in a Thermally Driven Low-Dimensional Geodynamo Model*
- P. 30** **G. Nisticò**, *Evolution of the physical properties of interplanetary CME-driven shocks from multi-spacecraft observations*
- P. 31** **N. Orsini**, *Magnetic Reconnection as a Means to Advanced High Specific Impulse Plasma Thrusters*

- P. 32 S. Pagliarella**, *X-ray polarimetry of young supernova remnants: diagnostics of magnetic amplification and plasma turbulence at collision-less shocks*
- P. 33 G. Panebianco**, *Short-Timescale Variability in the Relativistic Jet Plasma of Bright Blazar 3C 454.3 from Optical-Gamma Correlations*
- P. 34 E. Papini**, *Modeling the solar wind turbulent cascade over four full decades with Hall-MHD Box-in-Box simulations.*
- P. 35 S. Perri**, *The influence of magnetic turbulence in the energetic particle response at interplanetary shocks*
- P. 36 D. Perrone**, *Turbulence and kinetic effects in the solar wind: Solar Orbiter measurements and numerical Vlasov-Maxwell simulations*
- P. 37 G. Prete**, *The Interaction of a Supernova Remnant with background interstellar turbulence*
- P. 38 F. Pucci**, *Particle acceleration in high energy astrophysical plasmas: the interplay of multiple mechanisms.*
- P. 39 V. Quattrocioni**, *Schur Decomposition of Magnetic and Velocity Gradient Tensors in Space Plasmas*
- P. 40 A. Tamburrini**, *Unified Superstatistical Modeling of Non-Thermal Velocity Distributions and Velocity-Space Cascades in Space Plasmas.*
- P. 41 D. Vavassori**, *Plasma modelling of non-reactive and reactive HiPIMS discharges for tungsten deposition*
- P. 42 G. Vereshchagin**, *Pair luminosity and cooling of newborn strange star*
- P. 43 G. Zimbardo**, *A simple derivation of fractional Fick's law and the finding of uphill transport at collision-less shocks*
- P. 44 M. Zuin**, *Non-linear Langmuir wave study in a small-scale laboratory plasma, a model for solar wind*