

Temi per la lezione. Concorso 2023PAE013 - SSD FIS/02

Si richiede che ciascun candidato scelga uno fra i temi seguenti e prepari una lezione di 25 minuti pensata per studenti del corso di laurea triennale o magistrale in fisica.

Si destineranno circa cinque minuti per eventuali domande da parte della commissione.

La lezione sarà effettuata in remoto sulla piattaforma Zoom, con l'ausilio di Tablet o lavagna tradizionale. Non è ammessa la proiezione di slides.

The candidate has to choose one among the lecture subjects proposed below and prepare a 25 minutes lecture for undergraduate students in physics. Five minutes will be allocated for any questions from the examining commission.

The lecture will be held on the Zoom platform using a Tablet or a standard blackboard. The projection of slides is not allowed.

Zoom link:

<https://uniroma1.zoom.us/j/97857966297?pwd=TktqN3N4eW56aExrQ2kycUcyRVFHUT09>

- The Indetermination Principle
- The Schrödinger Equation
- The Dirac Equation
- Quantum Fields and Antiparticles
- Symmetries in Quantum Mechanics
- Perturbation Theory in Quantum Mechanics
- Potential Scattering in Quantum Mechanics
- The Quantum Theory of Radiation
- Path Integrals in Quantum Mechanics or in Quantum Field Theory
- Global Symmetries and Noether's Theorem
- Bosons and Fermions
- The Renormalization Group
- Critical Phenomena
- Quantum Statistical Mechanics
- Curvature and Einstein's Equations
- The Schwarzschild Solution
- The Early Universe
- The Expansion of the Universe
- Spontaneously Broken Global Symmetries
- Anderson-Higgs Mechanism
- Non-Abelian Gauge Theories

La commissione

A.D. Polosa

E. Vicari

G D'Amico