Temi per la lezione. Concorso 2023PAA002 - 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://unige.zoom.us/j/2832364542

- 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
- The H theorem
- Fluctuation-dissipation theorem
- The Onsager relations
- Thermal History of the Universe
- Introduction to Dark Matter and its production in the Universe
- Flavour-Changing neural currents in the Standard Model.

In case of problems send a mail to angelo.vulpiani@roma1.infn.it

La commissione

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