

Theory Questions

Quantum Field Theory I

Question 1

The Lorentz group and its irreducible (finite dimensional) representations.

Question 2

The Noether's theorem:

- Its formulation.
- Its implications.
- The case of Poincaré invariance (with the real scalar field as an example).
- Internal symmetries.

Question 3

The quantization of the Klein-Gordon field.

Question 4

Spinorial representation and their “wave” equations.

Question 5

The quantization of the Dirac field.