

Magnetic field effect on the decay process of a neutral scalar boson

Monday 10 September 2018 16:30 (20 minutes)

The effect of a homogeneous weak magnetic field on the decay process of a neutral scalar field to a pair of charged fermions is studied. The decay rate is calculated through the imaginary part of the self-energy of the scalar particle interacting with the charged fermions, at one loop. We find that the effect depends on the kinematical regime of the progenitor particle: for low transverse momenta, the decay is inhibited, while for high ones, the process is favored. We briefly discuss the possible physical reasons for this situation. The phenomenon can be relevant in early universe events or in high energy collisions.

Authors: PICCINELLI BOCCHI, Gabriella (Universidad Nacional Autónoma de México); JABER URQUIZA, Jorge Igor (Facultad de Ciencias, Universidad Nacional Autónoma de México); SANCHEZ CECILIO, Angel (Facultad de Ciencias, Universidad Nacional Autónoma de México)

Presenter: PICCINELLI BOCCHI, Gabriella (Universidad Nacional Autónoma de México)