IV International Workshop on Gravitomagnetism and Large-Scale Rotation Measurement

Contribution ID: 33

Type: Oral

Gravitomagnetic field and gravitational waves

Wednesday, 14 June 2023 10:40 (30 minutes)

We discuss here the possibility to detect high frequency gravitational waves by exploiting gravitomagnetic effects. In the laboratory frame, using the construction of the Fermi frame, the field of a gravitational wave can be described in terms of gravito-electromagnetic fields that are transverse to the propagation direction and orthogonal to each other. In particular, the gravito-magnetic field acts on spinning particles and under suitable conditions, a gravito-magnetic resonance may appear: this phenomenon can be used to design a new type of gravitational wave detectors, based on collective spin excitations, e.g. spin waves in magnetized materials.

Primary author: RUGGIERO, Matteo Luca (Università degli Studi di Torino)

Co-author: ORTOLAN, Antonello (Istituto Nazionale di Fisica Nucleare)

Presenter: RUGGIERO, Matteo Luca (Università degli Studi di Torino)

Session Classification: General Relativity

Track Classification: Fundamental Physics tests: Gravity, Lorentz violation, general relativity, cosmology etc.