

## Probing Light Mediators in the Radiative Emission of Neutrino Pair

*Thursday, August 4, 2022 12:20 PM (30 minutes)*

We propose a new possibility of using the coherently enhanced neutrino pair emission to probe light-mediator interactions between electron and neutrinos. With typical momentum transfer at the atomic  $\mathcal{O}(1\text{eV})$  scale, this process is extremely sensitive for the mediator mass range  $\mathcal{O}(10^{-3} \sim 10^4)\text{eV}$ . The sensitivity on the product of couplings with electron ( $g^e$  or  $y^e$ ) and neutrinos ( $g^\nu$  or  $y^\nu$ ) can touch down to  $|y^e y^\nu| < 10^{-9} \sim 10^{-19}$  for a scalar mediator and  $|g^e g^\nu| < 10^{-15} \sim 10^{-26}$  for a vector one, with orders of improvement from the existing constraints.

### Attendance type

In-person presentation

**Primary authors:** PASQUINI, Pedro Simoni (Unicamp); GE, Shao-Feng (Tsung-Dao Lee Institute, Shanghai Jiao Tong University)

**Presenter:** PASQUINI, Pedro Simoni (Unicamp)

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