“Hiding blazars with decaying alps”

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A new exciting era has begun with the development of multi-messenger astronomy. I will present a case study in which multi-messenger, multi-wavelength observations are exploited to indirectly probe fundamental physics beyond the Standard Model, making use of data from neutrino telescopes (IceCube), gamma-ray satellites (Fermi-LAT) and sounding rockets equipped with infrared cameras (CIBER). This extends the already flourishing multi-messenger astronomy tools. Indeed, the measurement of the diffuse background spectrum at 0.8-1.7 micron from the CIBER experiment has revealed a significant excess of the Cosmic Infrared Background (CIB) radiation compared to the theoretically expected spectrum. I will discuss the hypothesis that decays of axion-like particle (ALP) could explain this excess, which attenuates the diffuse TeV gamma-ray flux and alleviates the tension between the detected neutrino and gamma ray fluxes.