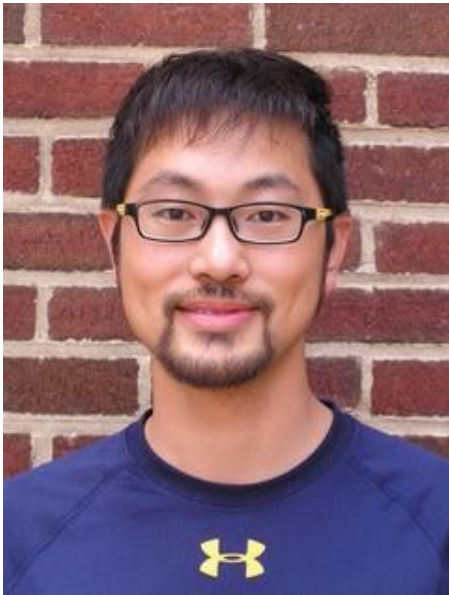




Laboratory for Elementary Particle
Physics (LEPP)

Theory Seminar

QCD Axion Dark Matter with f_a as low as 10^8 GeV



The Peccei-Quinn mechanism is an elegant solution to the Strong CP problem. The axion is the pseudo-Nambu-Goldstone boson that arises from the spontaneous breaking of the $U(1)_{PQ}$ symmetry. To reproduce the observed dark matter abundance using axions, the decay constant f_a is considered to be around 10^{12} GeV for the misalignment mechanism. On one hand, the late-time entropy production is known to allow larger f_a . On the other hand, the decay of the axion domain walls and strings can generate axion dark matter with f_a around 10^{11} GeV. We propose the first mechanism for QCD axion dark matter with f_a as low as 10^8 GeV, where the axion abundance is produced from the parametric resonance effect of the oscillating PQ breaking field.

Raymond Co

University of Michigan

Special Place

Wednesday November 29th, 2017

2:00pm

470 Physical Sciences Building