class EnergyScaleCoupling:

def \_\_init\_\_(self):

self.E\_planck = 1.22e19 # Planck energy in GeV

self.E\_weak = 246 # Weak scale in GeV

def compute\_scale\_dependent\_coupling(self, E):

"""

Compute scale-dependent coupling that naturally

suppresses temporal flow effects at particle physics scales

"""

# Exponential suppression at high energies

alpha = np.exp(-E/self.E\_weak)

# Preserve standard model couplings

g\_SM = self.standard\_model\_coupling(E)

# Combined coupling with smooth transition

g\_total = g\_SM \* (1 + alpha \* self.temporal\_coupling(E))

return g\_total

def temporal\_coupling(self, E):

"""

Temporal flow coupling that becomes relevant only at

appropriate scales

"""

return (E/self.E\_planck)\*\*4 # Naturally small at accessible energies

# Implementation

coupling = EnergyScaleCoupling()

effective\_coupling = coupling.compute\_scale\_dependent\_coupling(E\_experiment)