import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns

import warnings

warnings.filterwarnings("ignore", category=UserWarning)

# === CONFIGURE STRUCTURE INHERITANCE CORE ===

validator\_54 = np.array([0.547, 0.272, 0.553, 0.298, 0.545])

inheritance\_vector = np.array([0.008, -0.006, 0.012, -0.008, 0.007])

validator\_55 = validator\_54 + inheritance\_vector

# === SIMULATE PROPAGATION EMERGENCE ===

num\_nodes = 100

propagation\_data = []

for i in range(num\_nodes):

mutation = np.random.normal(0, 0.02, len(validator\_55))

traits = validator\_55 + mutation

echo\_phase = np.sin(np.sum(traits))

cohesion = 1.0 - np.linalg.norm(traits - validator\_55)

propagation\_score = echo\_phase \* cohesion

propagation\_data.append((traits[0], traits[2], propagation\_score))

# === PLOT PROPAGATION EMERGENCE MAP ===

x\_vals, y\_vals, score\_vals = zip(\*propagation\_data)

plt.figure(figsize=(10, 6))

sns.scatterplot(x=x\_vals, y=y\_vals, hue=score\_vals, palette="rocket", s=60)

plt.title("Validator 55 Seed Prediction — Structure Inheritance Emergence")

plt.xlabel("Trait Dimension 0")

plt.ylabel("Trait Dimension 2")

plt.tight\_layout()

plt.show()