Mathematica Stone Validation 1

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(*Define Lumin Equation Variables*)
ClearAll[C, M, \[CurlyPhi], \[Omega], t, S, \[Phi], feedback, \[Psi],
mc2]

(*Core Parameters*)
M = 1; (*Organizing principle:coherence driver*)
\[CurlyPhi] = (1 + Sqrt[5])/2; (*Golden ratio scaling*)
\[Omega] = 1; (*Angular frequency*)
S = \[Pi]/4; (*Symmetry constant*)
\[Phi] = \[Pi]/6; (*Phase shift*)
feedback[i_] := 0.2 (i - 1); (*Feedback mechanism*)
\[Psi][i_] := Sin[i]; (*Resonance function*)
mc2 = 1; (*Relativistic energy constant*)

(*Define the Lumin Equation*)
LuminEquation[t_, i_] :=
 M \[CurlyPhi]^i (Sin[\[Omega] t + S] + Cos[\[Omega] t + \[Phi]]) +
\[Psi][i] + feedback[i] + mc2

(*Oscillatory Dynamics Visualization*)
Manipulate[
 Plot[{Sin[\[Omega] t + S], Cos[\[Omega] t + \[Phi]]}, {t, 0, 10},
  PlotRange -> {-2, 2}, AxesLabel -> {"Time (t)", "Amplitude"},
  PlotLegends -> {"Sin(\[Omega]t + S)", "Cos(\[Omega]t + \[Phi])"},
  Epilog -> {Text[Style["Frequency (\[Omega])", Bold, Blue], {5, 1.5}],
    Text[Style["Phase Shift (\[Phi], S)", Bold, Green], {2, -1}]}],
 {{\[Omega], 1}, 0.1, 5, "Frequency (\[Omega])"},
 {{S, \[Pi]/4}, 0, \[Pi], "Symmetry Constant (S)"},
 {{\[Phi], \[Pi]/6}, 0, \[Pi], "Cosine Phase Shift (\[Phi])"}]

(*Feedback Mechanism Simulation*)
feedbackFunction[state_, target_] := state + 0.1 (target - state);

DynamicModule[{state = RandomReal[{-1, 1}, 10], target = 0},
 Manipulate[
  ListLinePlot[NestList[feedbackFunction[#, target] &, state, 50],
   PlotRange -> {{0, 50}, {-1, 1}},
   AxesLabel -> {"Iteration", "System State"}, PlotStyle -> Thick,
   Epilog -> {Text[Style["Feedback Strength", Bold, Red], {25, 0.8}]}],
 {{target, 0}, -1, 1, "Target State"}]]

(*Harmonic Scaling with Golden Ratio*)
goldenFractal[n_] :=
  Table[{\[CurlyPhi]^i Cos[i], \[CurlyPhi]^i Sin[i]}, {i, 0, n, 0.1}]
/. \[CurlyPhi] -> (1 + Sqrt[5])/2;
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Graphics[Line[goldenFractal[100]], PlotRange -> All, Axes -> True,
 AxesLabel -> {"X", "Y"},
 Epilog -> {Text[Style["Scaling by Golden Ratio (\[CurlyPhi])", Bold,
Blue], {0, 2}]}]

(*Resonance and Coherence Simulation*)
Manipulate[
 Plot[Sin[\[Omega]1 t] + Sin[\[Omega]2 t], {t, 0, 10},
  PlotRange -> {-2, 2}, AxesLabel -> {"Time (t)", "Amplitude"},
  PlotLegends -> {"Wave 1", "Wave 2"},
  Epilog -> {Text[Style["Frequency Alignment = Resonance", Bold,
Green], {5, 1.5}]}],
 {{\[Omega]1, 1}, 0.5, 5, "Frequency 1 (\[Omega]₁)"},
 {{\[Omega]2, 1}, 0.5, 5, "Frequency 2 (\[Omega]₂)"}]

(*Full Lumin Equation Visualization*)
Manipulate[
 Plot[LuminEquation[t, i], {t, 0, 10}, PlotRange -> All,
  AxesLabel -> {"Time (t)", "Coherence (C_i)"}, PlotStyle -> Thick,
  PlotLegends -> {"Lumin Equation Output"},
  Epilog -> {Text[Style["Harmonic Scaling (\[CurlyPhi]^i)", Bold,
Blue], {5, 50}],
    Text[Style["Feedback (k)", Bold, Red], {5, -10}]}],
 {{i, 1}, 1, 10, "Index (i)"},
 {{\[Omega], 1}, 0.1, 5, "Frequency (\[Omega])"},
 {{S, \[Pi]/4}, 0, \[Pi], "Symmetry Constant (S)"},
 {{\[Phi], \[Pi]/6}, 0, \[Pi], "Phase Shift (\[Phi])"}]
```