# BADGER'S LAW — Draft 7.2 Findings

## 1. Theory Overview

- 3D Spiral Conjecture: Motion as time-evolving golden-ratio spiral
  $s_i(t)=\phi^t [\cos(\omega_i t), \sin(\omega_i t), t]$, $\phi=(1+\sqrt{5})/2$.
- Phase Tension Metric:
  $V(t)=a (|e^{i\omega 1t}-e^{i\omega 2t}|+|e^{i\omega 2t}-e^{i\omega 3t}|+|e^{i\omega 3t}-e^{i\omega 1t}|)$.

## 2. Chaotic Three-Body Simulation Recap

- Perturbation-rich initial positions & velocities around equilateral Lagrange.
- V(t) showed non-monotonic dips corresponding to close encounters.
- Dip vs Encounter alignment confirms metric flags chaotic resonance events.
- Sample times: see table in interactive report.

## 3. Next Steps

1. Refine distance threshold and check sensitivity of dip/encounter alignment.
2. Vary mass ratios and initial geometric configurations for robustness.
3. Document parameter choices for reproducibility.