

A good value for the slime mold *Puphill* value is around 0.33

1. Random walk ☒
2. Aggregation ☒
3. Swarm ☐
4. Nested streams ☐
5. Spiral ☐
6. Snail, slug ☐
7. "Plant"

(we are only looking up to step 5)

BZ reaction - Belousov-Zhabotinsky reaction

2 chemical substances are mixed - color changes happens

Refractory period - the reaction cannot immediately happen again

The result is circular and spiraled waves

Spiral waves always win

Reaction as a cellular automaton

Three states - inactive --> active --> refractive --> inactive

In the active state, it makes inactive states around it active, and the process is recursive.

The refractory state does not allow for a previously active area to become active again immediately

Spiral waves emerging depends on the refractory state

Make an analysis for three different thresholds - 10, 20, and 30

-As the threshold increases, the density must increase so that a spiral emerges

For a threshold of 10: 0.1 gives a metric of 1 sometimes

For a threshold of 20: 0.73 gave rise to spiral with a metric of 0.92; 0.72 is sparingly creating a spiral

For a threshold of 30: even with a density of 1, spirals do not occur

Create three curves, but also look at the cAMP view

The spirals are created with holes in the environment, if the spirals are too high, the signal spreads but never returns, a slightly lower density creates the spiral

These higher densities create circular waves