

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Control of pattern formation in *Dictyostelium discoideum*¹ AZAM GHOLAMI, TORSTEN ECKSTEIN, VLADIMIR ZYKOV, ALBERT BAE, Max-Planck Institute for Dynamics and Self-Organization, Goettingen, OLIVER STEINBOCK, Department of Chemistry and Biochemistry, Florida State University Tallahassee, FL 32306-4390, EBERHARD BODENSCHATZ, MPI for Dynamics and Self-Organization, Goettingen — A classic example of self-generated patterns in nature is found in the social amoeba *Dictyostelium discoideum*. When starved, millions of individual cells signal each other with the signaling molecule cyclic adenosine monophosphate (cAMP). cAMP waves in the form of spiral or target patterns propagate in cell populations and direct aggregation of individual cells to form centimeter-scale Voronoi domains and eventually multicellular fruiting bodies. In this study, we control the shape of Voronoi domains by introducing periodic geometrical obstacles with different size and periodicity in the system. We observe that the obstacles act as aggregation centers and the periodic arrangement of the obstacles is reflected directly in the corresponding Voronoi domains.

¹This work is partially supported by MaxSynBio Consortium which is jointly funded by the Federal Ministry of Education and Research of Germany and the Max Planck Society.

Azam Gholami
MPI for Dynamics and Self-Organization, Goettingen

Date submitted: 07 Nov 2016

Electronic form version 1.4