

# Dynamically Generated Patterns

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**Abstract:** Starting from a dynamical system  $(\Omega, G)$ , with  $G$  a generic topological group, we devise algorithms that generate families of patterns in the Euclidean space, which densely embed  $G$  and on which  $G$  acts continuously by rigid shifts. We refer to such patterns as being dynamically generated. Our interest is in the collective modes of coupled resonators arranged in such patterns. We show that their algebra of observables is computable and, for several cases where the computations were carried out explicitly, we demonstrate several interesting physical phenomenon that can be achieved with those systems.