

Abstract Submitted  
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**Synchronization of synthetic gene oscillators**<sup>1</sup> LEV S. TSIMRING, TAL DANINO, OCTAVIO MONDRAGON-PALOMINO, JEFF HASTY, University of California, San Diego — Synchronized clocks are of fundamental importance in the coordination of rhythmic behavior among individual elements in a community. We describe an engineered gene circuit with intercellular coupling that generates synchronized oscillations in a population of bacteria. Using microfluidic devices tailored for cellular populations at differing length scales, we investigate the collective synchronization properties along with spatiotemporal waves occurring on millimeter scales. We use computational modeling to quantitatively describe the observed phenomena.

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