

Abstract Submitted  
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**Experimental observation of spiral wave chimeras in coupled chemical oscillators** JAN TOTZ, Technische Universität Berlin, KENNETH SHOWALTER, West Virginia University, HARALD ENGEL, Technische Universität Berlin — I will present a versatile setup based on optically coupled catalytic micro-particles, that allows for the experimental study of synchronization patterns in very large networks of relaxation oscillators under well-controlled laboratory conditions. In particular I will show our experimental observation of the spiral wave chimera, predicted by Kuramoto in 2003. This pattern features a wave rotating around a spatially extended core that consists of phase-randomized oscillators. We study its existence depending on coupling parameters and observe a transition to incoherence via core growth and splitting. The spiral wave chimera is likely to play a role in cardiac and cortical cell ensembles, as well as in cilia carpets.

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