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50<sup>th</sup> ANNIVERSARY PROGRAM : TOPOLOGICAL AND RIGOROUS COMPUTATIONAL METHODS  
FOR HIGH DIMENSIONAL DYNAMICS  
“WORKSHOP ON RIGOROUS COMPUTATIONAL DYNAMICS IN INFINITE DIMENSIONS”  
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# Validated continuation curves and bifurcations

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I discuss a method of computer-assisted proofs that I have developed with Thomas Wanner using the constructive implicit theorem to prove both the existence of and the isolation of branches of equilibrium solutions and their bifurcations. I will give examples of applications to a coral population model, to a lattice Allen-Cahn model, and to the Ohta-Kawasaki model.

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