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Tuesday May 30, 2023, 16:00

Vacuum solutions in the theory of electroweak interactions

University of Tübingen, Mathematics Department, C3N16 and via Zoom:

<https://zoom.us/j/94274376976?pwd=YVBvU2tNMTBXSGxGYVg4eUoyV1ZiQT09>

Meeting-ID: 942 7437 6976

Passcode: 929851

Abstract: In this talk I will describe the vacuum sector of the Weinberg-Salam (WS) model of electroweak forces. In the vacuum sector the WS model yields the $U(2)$ -Yang-Mills-Higgs equations. We show that at large constant magnetic fields the translational symmetry of the equations is broken spontaneously. Namely, there are solutions, which in the plane orthogonal to the magnetic field have the symmetry of a lattice and which have lower energy locally than the homogeneous (gauge-translationally invariant) solutions. The stability of these solutions is an open problem.