

**EXISTENCE OF A CENTER MANIFOLD AND TRAVELLING
BREATHER SOLUTIONS FOR KLEIN-GORDON LATTICES**

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In this talk, I am interested in constructing travelling breather solutions in Klein-Gordon lattices. These solutions are spatially localized solutions, which appear time periodic in a referential in translation at constant velocity. Thanks to an appropriate formulation of the problem via a system of advance-delay differential equations, I will construct an invariant center manifold and prove a reduction result. The study of (small amplitude) travelling breather solutions is then performed via the study of the dynamics on the center manifold. I will also present some numerical computations (opening the possibility of a study in the large amplitude regime) and some open questions concerning this problem.