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Mayukh Mukherjee* (mayukh@live.unc.edu). *Travelling wave solutions for nonlinear Schrödinger and nonlinear Klein-Gordon equations on Riemannian manifolds.*

In this talk, we focus on travelling wave solutions to NLS and NLKG (the emphasis is on NLKG) equations on Riemannian manifolds, mainly compact ones. These are solutions of the form

$$v(t, x) = e^{i\lambda t} u(g(t)x)$$

with $\lambda \in \mathbb{R}$, where $g(t)$ is a one-parameter family of isometries flowing by the Killing field X . We outline methods of establishing existence of travelling wave solutions via energy minimisation methods and proving that solutions are nontrivial (not standing) on a sufficiently large class of isotropic compact manifolds for at least a non-empty set of parameters (the same parameters that show up in the NLS and NLKG equations). We will mention certain sharp estimates on low dimensional spheres and outline the subelliptic analysis on S^n for the NLKG when X has length ≤ 1 . Here we will observe some phenomena which have no parallel in the flat Euclidean space; a certain degree of curvature of the space is essential. We will finish by stating a few related results on complete noncompact manifolds which have a certain radial symmetry. (Received September 04, 2013)