ICTS-Infosys Math-Physics Lecture Series

Titles   :   1. Vortices and Cones (8th December)
      2. Skyrmions, Nuclei and SU(4) Weight Clusters (11th December)
      3. Some Characteristics of Topological Science (12th December)

Speaker :   N S Manton, University of Cambridge, UK

Date   :   8, 11 & 12 December, 2017

Time   :   11:30 AM

Venue   :   Madhava Lecture Hall, ICTS Campus, Bangalore

Abstract :   There are many types of topological soliton and they have many applications. There are also many links between the different types. The first talk explains how various distinct types of (abelian) gauged vortices are unified, and related to the geometry of conical singularities on Riemann surfaces. The second presents a large class of new, 3-d Skyrmion solutions. Skyrmions are the solitons of chiral EFTs in hadronic physics, used as models of nuclei after one quantizes their key, low-energy degrees of freedom. The final talk will discuss some characteristic features of solitons, and how they are similar to and how they differ from point particles. This will be a more informal presentation, and contributions to the discussion from the audience are welcome. It is striking that topological objects like vortices and 2-d Skyrmions are easily seen in condensed matter contexts, but remain elusive in particle physics.