INVERSE PROBLEM FOR YANG-MILLS-HIGGS FIELDS

Speaker: Lauri Oksanen
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Venue: Zoom: 618-038-6257, Password: SCMS

Abstract: We show that the Yang-Mills potential and Higgs field are uniquely determined (up to the natural gauge) from source-to-solution type data associated with the classical Yang-Mills-Higgs equations in the Minkowski space. We impose natural non-degeneracy conditions on the representation for the Higgs field and on the Lie algebra of the structure group which are satisfied for the case of the Standard Model. Our approach exploits non-linear interaction of waves to recover a broken non-abelian light ray transform of the Yang-Mills field and a weighted integral transform of the Higgs field. The talk is based on joint work with Xi Chen, Matti Lassas, and Gabriel Paternain.