Speaker: Andreas Klappenecker

Title: Nonbinary Stabilizer Codes over Finite Fields

Abstract

One formidable difficulty in quantum communication and computation is to protect information-carrying quantum states against undesired interactions with the environment. In past years, many good quantum error-correcting codes had been derived as binary stabilizer codes. Fault-tolerant quantum computation prompted the study of nonbinary quantum codes, but the theory of such codes is not as advanced as that of binary quantum codes. We present recent advances in the theory of stabilizer codes and discuss numerous quantum code constructions.