

Name	Abstract
Prof. Sourav Pal	<p>Title : Operator theory on the Tetrablock</p> <p>Abstract : A triple of commuting operators (T_1, T_2, T_3), defined on a Hilbert space H, for which the closed tetrablock E is a spectral set is called a tetrablock contraction or an E-contraction. The set E is defined as $E = \{(x_1, x_2, x_3) \in \mathbb{C}^3 : 1 - zx_1 - wx_2 + zwx_3 \neq 0 \text{ whenever } z \leq 1, w \leq 1\}$. We show by a counter example that rational dilation fails on the tetrablock. Also for an E-contraction (T_1, T_2, T_3), where each T_i is a matrix, has the property of having a distinguished variety in E as a spectral set. Moreover, we prove that every E-contraction can be uniquely written as a direct sum of an E-unitary and a completely non-unitary E-contraction. This decomposition is analogous to the canonical decomposition of a contraction operator into a unitary and a completely non-unitary contraction. We produce a concrete operator model for (T_1, T_2, T_3) under certain conditions.</p>
Prof. Santanu Dey	<p>Title : Maps between Hilbert C^*-modules</p> <p>Abstract : We introduce, for any set S, the concept of K-family between two Hilbert C^*-modules over two C^*-algebras, for a given completely positive definite (CPD-) kernel K over S between those C^*-algebras and obtain a factorization theorem for such K-families. Several characterizations of K-families are obtained. One of these characterizations says that such K-families extend as CPD-kernels, between associated (extended) linking algebras, whose $(2, 2)$-corner is a homomorphism and vice versa.</p>