1099-47-172 **Daniel Beltita**, **Sasmita Patnaik*** (sasmita@iitk.ac.in) and **Gary Weiss**. *CARTAN SUBALGEBRAS OF OPERATOR IDEALS.*

Denote by $\mathcal{U}_{\mathcal{I}}(\mathcal{H})$ the group of all special unitary operators $V \in \mathbf{1}+\mathcal{I}$ where $\mathcal{H}$ is a separable infinite-dimensional complex Hilbert space and $\mathcal{I}$ is an ideal of $B(\mathcal{H})$. An ideal has a natural structure of a Lie algebra where the Lie bracket is defined as the commutator of operators. For every Cartan subalgebra $\mathcal{C}$ of $\mathcal{I}$ (maximal abelian self-adjoint subalgebra of $\mathcal{I}$), its conjugacy class is defined as the set of Cartan subalgebras $\{V\mathcal{C}V^* \mid V \in \mathcal{U}_{\mathcal{I}}(\mathcal{H})\}$. For nonzero proper ideals $\mathcal{I}$ we construct an uncountable family of Cartan subalgebras $\mathcal{C}$ of $\mathcal{I}$ with distinct conjugacy classes under the action of the group $\mathcal{U}_{\mathcal{I}}(\mathcal{H})$. This is in contrast to the by now classical observation of P. de La Harpe who showed that when $\mathcal{I}$ is any of the Schatten ideals, there is precisely one conjugacy class under the action of the full group of unitary operators. (Received February 07, 2014)