Complete decomposability of positive compact operators with positive commutators

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As an application of the Lomonosov theorem one can easily see that every commutative family of compact operators on a Banach space is triangularizable. In the case of Banach lattices the order analog does not exist since there exist indecomposable positive compact operators. In this talk we consider positive commutators of positive compact operators. It is known that such commutator is necessarily quasinilpotent. This immediately implies that a semigroup $\mathcal{S}$ of positive compact operators with the property that every commutator between operators from $\mathcal{S}$ is positive or negative is triangularizable. The natural question that arises is complete decomposability of such semigroups. We will present positive results for general families, semigroups and Lie sets of compact operators.

This is a joint work with R. DRNOVŠEK (University of Ljubljana).