

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-47-797 **Jaedeok Kim*** (jkim@jsu.edu), 700 Pelham Rd, Jacksonville, AL 36265. *An Interesting Problem Involving Projections in Operator Algebra.*

Significant amount of efforts have been made to identify the properties of projections in the study of operator algebras such as Von Neumann Algebras, Nest Algebras and CSL Algebras since the introduction of them. This paper proves the following interesting relation between two projections in $B(\mathcal{H})$. Given two projections $E, F \in B(\mathcal{H})$ (i.e. $E = E^* = E^2$ and $F = F^* = F^2$),

$$\text{Ran}(EF - FE) = \text{Ran}(EFE - FEF) = \text{Ran}(EFEF - FEFE) = \dots$$

or equivalently,

$$\text{Ker}(EF - FE) = \text{Ker}(EFE - FEF) = \text{Ker}(EFEF - FEFE) = \dots$$

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