

# On polynomial identities in algebras generated by idempotents and its \*-representations

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We consider algebras  $P_{n,\bar{\lambda}}$  that are generated by indepotents  $p_1, \dots, p_n$  connected by linear relation  $\lambda_1 p_1 + \dots + \lambda_n p_n = e$ ,  $\lambda_i \in \mathbb{C}\{0\}$ . It is proved that  $P_{n,\bar{\lambda}}$  is the algebra without polynomial identities for  $n > 4$  and for  $n = 4$ ,  $\lambda_1 + \lambda_2 + \lambda_3 + \lambda_4 \neq 2$ . Also it is shown that  $P_{4,\bar{\lambda}}$  are  $F_4$ -algebras if  $\lambda_1 + \lambda_2 + \lambda_3 + \lambda_4 = 2$ . It is found some example of  $F_6$ -algebras in set of algebras  $P_{n,\lambda}/\{p_{i_l}p_{j_l} = p_{j_l}p_{i_l} = 0\}_{l=1}^m$  where  $i_l \neq j_l \in \{1, \dots, n\}$ .