ON THE MULTIPLICATION RING OF A PRIME RING

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(WITH MATEJ BREŠAR)

Given a positive integer n, we show there is a positive integer $f(n)$ with the following property. Let R be a prime ring with extended centroid C, and let $a_1, a_2 \ldots, a_n$ be C-independent elements of R. Then there is an element $p = \sum_{j=1}^{m} L_{u_j} R_{v_j}$ in the multiplication ring of R such that $m \leq f(n)$, $p(a_1) = 0$ and $p(a_2), \ldots, p(a_n)$ are C-independent. A similar approach is used in computing the strong degree of the direct product of simple artinian rings.