1007-05-247　　　　　**John Baldwin**, **Melissa Depwig**, **Ben Ford**, **Abe Kunin** and **Lawrence Sze***
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Self-Conjugate $t-$Core Partitions and $p-$Blocks of A_n.

We prove that for any positive integer $n \neq 2$, a $t-$core partition size n must exist if $t = 8$, or $t \geq 10$. This result has consequences in the representation theory of alternating groups, and has a version as a theorem about the representation of integers by sums of squares. (Received February 22, 2005)

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