A reason why the automorphism group of the symmetric group is the symmetric group itself (for n not 2,6).

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Abstract

This talk will give a complete description of why $Aut(S_n) \cong S_n$ for $n \neq 2, 6$. Using the power abstract algebra we can gain an understanding of why this is true and appreciate the mysterious reason why it does not hold for S_6 .