

1135-VL-1903 **David A Nash*** (nashd@lemoyne.edu), Le Moyne College, 1419 Salt Spring Road, Syracuse, NY 13214, and **Sara Randall**. *How do you fix an oval track puzzle?*

The oval track group, $OT_{n,k}$, is the subgroup of the symmetric group, S_n generated by the basic moves in a generalized oval track puzzle with n tiles and a turntable of size k . In this paper we completely describe the oval track group for all possible n and k and use this information to answer the following question: If the tiles are removed from an oval track puzzle, how must they be returned in order to ensure that the puzzle is still solvable? As part of this discussion we introduce the parity subgroup of S_n in the case when n is even. (Received September 25, 2017)