

THE  $\varphi$ -CATEGORY OF THE PAIRS  
 $(G_{k,n}, S^m), (P_n(\mathbf{R}), T^a \times \mathbf{R}^{m-a})$

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**Abstract.** In this paper we will show that the  $\varphi$ -category of the pair  $(G_{k,n}, S^m)$ ,  $(P_n(\mathbf{R}), T^a \times \mathbf{R}^{m-a})$  is infinite for suitable choices of the numbers  $a, m, n, k$ .

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