

Seminarium geometrów

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Twierdzenie Bourgina-Yanga dla grup p -torycznych

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Abstract: In 1933, S. Ulam posed and K. Borsuk proved that if $n > m$, then it is impossible to have a map $f : S^n \rightarrow S^m$ preserving symmetry, that is, $f(-x) = -f(x)$. Next, in 1954-55, C. T. Yang and D. Bourgin showed that if $f : S^n \rightarrow R^{m+1}$ preserves this symmetry, then $\dim f^{-1}(0) \geq n - m - 1$.

We give a wide review of applications of the Borsuk-Ulam theorem from combinatorics through equipartition problems to analysis. We will present a versions of the Bourgin-Yang theorem for some larger groups of symmetries, and more general domains of map. We also discuss the case $n = \infty$.