in S. We define the terms "tangent line" and "tangent plane". Our principal results may be stated as follows: if K is a point continuum in S and if P is a point of K, then the set of all lines tangent to K at P is a line continuum and the set of all planes tangent to K at P is a plane continuum.

SUR LES TRANSFORMATIONS DES SPHÈRES EN SPHÈRES

Par L. S. Pontrjagin, Moscou.

L'auteur étudie les classes de transformations univoques d'une S_{n+k} en une S_n et obtient ce théorème définitif pour $k=1, 2$.

Théorème. Soit $P(n, k)$ le nombre de classes de transformations univoques de S_{n+k} en S_n. On a alors

$$P(n,1)=\begin{cases} 1 & \text{pour } n=1 \\ \infty & \text{pour } n=2 \\ 2 & \text{pour } n>2\,. \end{cases}$$

$$P(n,2)=\begin{cases} 1 & \text{pour } n\neq 2 \\ 2 & \text{pour } n=2\,. \end{cases}$$

ON HOMOLOGIES IN GENERAL SPACES

By B. Kaufmann, Cambridge.

Let F be an arbitrary r-dimensional set in R^n, and let $Z^p \sim 0$ be an arbitrary homology in F. We assume $Z^p = z_1^p, z_2^p, \cdots, z_k^p, \cdots$ to be a true cycle in F with a variable modulus m_k.[1] By B we denote an arbitrary carrier of Z^p, i. e. a closed subset of F containing all vertices of the cycles z_k^p for all $k=1, 2, \cdots$.

We say a subset A of F *destroys* the homology $Z^p \sim 0$ in F if Z^p is totally[1] $\not\sim 0$ in any compact subset of $F-A$. We can assume A to be a closed subset of F outside a carrier B of Z^p such that Z^p is totally $\not\sim 0$ in B. Then we can obtain the following theorems, which were conjectured by P. Alexandroff[1] (dimensionstheoretischer Verschlingungssatz):

Theorem H_1. There exists always an at most $(r-h-1)$-dimensional subset $F^{(r-h-1)}$ of $F(0 \leqq h \leqq r-1)$ which destroys the homology $Z^h \sim 0$ in F, i. e. Z^h is totally $\not\sim 0$ in $F-F^{(r-h-1)}$.

[1] See P. Alexandroff, "Dimensionstheorie", Math. Annalen, 106 (1932), 161–238.