

102. G. W. Whitehead: *On families of continuous vector fields over spheres.*

Let $f(n)$ be the maximum number of everywhere independent continuous fields of tangent vectors that can exist on the n -sphere S^n . It is well known that $f(2n) = 0$, $f(2n+1) \geq 1$, $f(4n+3) \geq 3$, and $f(8n+7) \geq 7$. It has been proved independently by B. Eckmann (Comment. Math. Helv. vol. 15 (1942) pp. 1-26) and the author (Ann. of Math. vol. 43 (1942) pp. 132-146) that $f(4n+1) = 1$. In this paper it is shown that $f(8n+3) = 3$. It follows from this and results of N. E. Steenrod (Ann. of Math. vol. 45 (1944) pp. 294-311) that if $m > k$ and $k = 2n, 4n+1$, or $8n+3$, with $n > 0$, then S^m is not a k -sphere bundle over any complex B . (Received December 10, 1945.)

NEW PUBLICATIONS

A collection of papers in memory of Sir William Rowan Hamilton. (Scripta Mathematica Studies, no. 2.) New York, Scripta Mathematica, 1945. 82 pp. \$1.00.

Sequential analysis of statistical data: applications. Prepared by Statistical Research Group, Columbia University, for the Applied Mathematics Panel, National Defense Research Committee, Office of Scientific Research and Development. New York, Columbia University Press, 1945. 315 pp. \$6.25.