Daniel A. Moran Corrigendum et addendum ad: "Minimal cell coverings of sphere bundles over spheres"

Commentationes Mathematicae Universitatis Carolinae, Vol. 20 (1979), No. 1, 189--190

Persistent URL: http://dml.cz/dmlcz/105913

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COMMENTATIONES MATHEMATICAE UNIVERSITATIS CAROLINAE 20, 1 (1979)

CORRIGENDUM ET ADDENDUM AD "MINIMAL CELL COVERINGS OF SPHERE BUNDLES OVER SPHERES" D. A. MORAN

It has been pointed out by Prof. Nelson Max [3] that the key step in the purported proof of the main theorem in [5] is in error. I have been unable to recover the full strength of that result, but I wish to delineate the circumstances wherein it has been proved. The terminology and notation of [5] will be used.

1. An easy argument employing the exact homotopy sequence of a bundle shows that M is k-connected, where k = = min (p,q) - 1. According to theorems of Luft [2] and of Osborne and Stern [6], it can be inferred from this that M can be covered by three cells if $\frac{1}{2}$ (p + 1) $\leq q \leq 2p - 1$.

2. By Bott's famous computations, if p = 3, 5 or 6 (mod 8) and q + 2 > p, then $\prod_{q=1} (SO_{q+1}) = 0$. For such p and q, all q-sphere bundles over a p-spheres are products, and can be covered by three cells.

3. If the fibration admits a global cross-section, M can be covered by three cells [4].

To my knowledge, the remaining cases are still open.

References

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(Oblatum 30.11. 1978)