

**Rudyak, Yu. B.****On the orientability of spherical, topological, and piecewise-linear fibrations in complex K-theory.** (English. Russian original) [Zbl 0695.55002](#)

Sov. Math., Dokl. 37, No. 1, 283-286 (1988); translation from Dokl. Akad. Nauk SSSR 298, No. 6, 1338-1341 (1988).

The conditions of the orientability of a complex vector bundle in complex K-theory are well known [*M. F. Atiyah, R. Bott* and *A. Shapiro*, *Topology* 3, Suppl. 1, 3-38 (1964; [Zbl 0146.190](#))]. The author asks if they are sufficient (the necessity is obvious) for the E-orientability of a spherical (in particular, linear, piecewise-linear, or topological) fibration over a cell complex, where E is a connected ring spectrum of finite type. More precisely, assuming that  $\xi$  is  $E_0$ -orientable and taking the respective orientation  $v$  and the nth Postnikov invariant  $\theta_n$ , the author proves that the fibration  $\xi$  is E-orientable if and only if  $\emptyset = \theta_n(v)$  for all n. Another equivalent condition is also obtained. The proofs are sketched or omitted.

Reviewer: [J.Kubarski](#)**MSC:**

- [55N15](#) Topological K-theory
- [55R10](#) Fiber bundles in algebraic topology
- [55S35](#) Obstruction theory in algebraic topology

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Cited in **1** Document**Keywords:**[E-orientability](#); [connected ring spectrum](#); [orientation](#); [Postnikov invariant](#)