

**MR2317756 (2009d:57039) 57N10**

**Brookman, Jeremy (1-IN); Davis, James F. [Davis, James Frederic] (1-IN); Khan, Qayum (1-IN)**

**Manifolds homotopy equivalent to  $P^n \# P^n$ . (English summary)**

*Math. Ann.* **338** (2007), no. 4, 947–962.

Summary: “We classify, up to homeomorphism, all closed manifolds having the homotopy type of a connected sum of two copies of real projective  $n$ -space.”

---

### References

1. Banagl, M., Ranicki, A.: Generalized Arf invariants in algebraic  $L$ -theory. *Adv. Math.* **199**, 542–668 (2006) [MR2189218](#)
2. Brookman, J.G.: Splitting homotopy equivalences along codimension 1 submanifolds. Ph.D. Thesis, University of Edinburgh (2004). <http://www.jbrookman.me.uk/surgery/thesis.pdf>
3. Cappell, S.E.: Manifolds with fundamental group a generalized free product. I. *Bull. Am. Math. Soc.* **80**, 1193–1198 (1974) [MR0356091](#)
4. Cappell, S.E.: On connected sums of manifolds. *Topology* **13**, 395–400 (1974) [MR0358793](#)
5. Cappell, S.E.: Unitary nilpotent groups and Hermitian  $K$ -theory. I. *Bull. Am. Math. Soc.* **80**, 1117–1122 (1974) [MR0358815](#)
6. Cappell, S.E.: A splitting theorem for manifolds. *Invent. Math.* **33**(2), 69–170 (1976) [MR0438359](#)
7. Connolly, F.X., Davis, J.F.: The surgery obstruction groups of the infinite dihedral group. *Geom. Topol.* **8**, 1043–1078 (electronic) (2004) [MR2087078](#)
8. Connolly, F., Koźniewski, T.: Nil groups in  $K$ -theory and surgery theory. *Forum Math.* **7**(1), 45–76 (1995) [MR1307955](#)
9. Connolly, F.X., Ranicki, A.A.: On the calculation of  $UNil$ . *Adv. Math.* **195**, 205–258 (2005) [MR2145796](#)
10. Cappell, S.E., Shaneson, J.L.: On four dimensional surgery and applications. *Comment. Math. Helv.* **46**, 500–528 (1971) [MR0301750](#)
11. Freedman, M.H., Quinn, F.: *Topology of 4-manifolds*. In: Princeton Mathematical Series, vol. 39. Princeton University Press, Princeton (1990) [MR1201584](#)
12. Hempel, J.: *3-Manifolds*. AMS Chelsea Publishing, Providence (2004) Reprint of the 1976 original [MR2098385](#)
13. Jahren, B., Kwasik, S.: Manifolds homotopy equivalent to  $RP^4 \# RP^4$ . *Math. Proc. Camb. Phil. Soc.* **140**, 245–252 (2006) [MR2212277](#)
14. Kirby, R.C., Siebenmann, L.C.: *Foundational Essays on Topological Manifolds, Smoothings, and Triangulations*. Princeton University Press, Princeton (1977). With notes by John Milnor and Michael Atiyah, *Annals of Mathematics Studies*, No. 88 [MR0645390](#)
15. López de Medrano, S.: *Involutions on Manifolds*. Springer, New York (1971). *Ergebnisse der Mathematik und ihrer Grenzgebiete, Band 59* [MR0298698](#)
16. Lück, W.:  $K$ - and  $L$ -theory of the semi-direct product of the discrete Heisenberg group by  $Z/4$ . *Geom. Topol.* **9**, 1639–1676 (electronic) (2005) [MR2175154](#)
17. Ranicki, A.: Exact sequences in the algebraic theory of surgery. In: *Mathematical*

- Notes, vol. 26. Princeton University Press, Princeton (1981) [MR0620795](#)
18. Stallings, J.: Whitehead torsion of free products. *Ann. Math.* **82**(2), 354–363 (1965) [MR0179270](#)
  19. Wall, C.T.C.: Free piecewise linear involutions on spheres. *Bull. Am. Math. Soc.* **74**, 554–558 (1968) [MR0222905](#)
  20. Wall, C.T.C.: Surgery on compact manifolds. In: *Mathematical Surveys and Monographs*, vol. 69, 2nd edn. American Mathematical Society, Providence (1999). Edited and with a foreword by A. A. Ranicki [MR1687388](#)
  21. Weinberger, S.: On fibering four- and five-manifolds. *Isr. J. Math.* **59**(1), 1–7 (1987) [MR0923658](#)

*Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.*