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69T-G27. ROBION C. KIRBY, LAURENCE C. SIEBENMANN, Institute for Advanced Study, Princeton, New Jersey 08540, and CHARLES T. C. WALL, University of Liverpool, Liverpool, England. *The annulus conjecture and triangulation.*

Methods of Kirby (*Stable homeomorphisms*, preprint) show that the following conjectures $C(k,m)$, $m \geq 5$, (Kirby's modified by Siebenmann) imply, for example, existence of a PL manifold structure on any metrizable open topological m-manifold. $C(k,m)$: Let $h : D^k \times T^n \to W^m$, $k+n=m \geq 5$, be a homeomorphism onto a PL manifold that gives a PL isomorphism of boundaries (D^k = k-disk; T^n = n-torus, the n-fold product of circles). Then for some finite covering $\widetilde{h} : D^k \times T^n \to \widetilde{W}$ of h, $\widetilde{h}|\partial D^k \times T^n$ extends to a PL homeomorphism. The stronger conjecture $\overline{C}(k,m)$ with h merely a homotopy equivalence can be decided by surgery. Wall has proved $\overline{C}(k,m)$ for $k \neq 3$, and disproved $\overline{C}(3,m)$. **First Conclusions.** (A) From $\overline{C}(0,m)$: Every homeomorphism of R^m, $m \geq 5$, is stable; hence the annulus conjecture holds in R^m. (B) On a PL manifold, dim ≥ 5, without boundary, decomposable with no 3-handles, the PL structure is unique up to small topological isotopies. (C) On microbundles: If $i < m \geq 5$, $\pi_i(\mathrm{TOP}_m, \mathrm{PL}_m)$ is 0 for $i \neq 3$ and Z_2 or 0 for $i = 3$. Hence if M is any manifold, for d large, $M \times R^d$ admits a PL structure provided $H^4(M; Z_2) = 0$. (D) Without Wall's result one can triangulate any closed 4-connected manifold. J. L. Shaneson and W. C. Hsiang have a later proof of $\overline{C}(0,m)$. (Received December 10, 1968.)