

Errata and Addenda for *Poincaré Duality in Dimension 3*

28 April 2021

page 44, line 14 (proof of Corollary 4.9.1): “ N has two ends. Hence N ” should be “ π has two ends. Hence P ”.

page 60, line 17: insert “most of” before “the dihedral vertex groups”.

page 79, line -4. insert “of groups” after “pairs”.

page 82, line 22; note that in Theorem 8.9, “ N is FP_2 ” is used in the penultimate sentence.

page 83, line -10: delete “ $I^* =$ ”.

page 110, lines 19-20: replace “Lemma 4.6 and Corollary 4.9.1 extend to show” by “It follows from Lemma 4.6”, and delete the superscript $^-$ at the end of the sentence.

page 116, line 16: add a new corollary to Theorem 11.16.

If G is not virtually properly locally cyclic then $\mathbb{Z}[G]$ is noetherian if and only if G is polycyclic.

Proof. If $\mathbb{Z}[G]$ is noetherian then G is noetherian and almost coherent. Noetherian groups are restrained, since nonabelian free groups have infinitely generated subgroups. \square

page 116, Theorem 11.18: in the statement “a PD_3 -group” should be “an almost coherent PD_3 -group”.

In the proof, replace “and G is \dots solvable” (lines -5 to -3) by “and if $u(G) < \infty$ then G is restrained. Therefore we may assume that G is restrained, and is not virtually properly locally cyclic. Since G is almost coherent, it is solvable, by Theorem 11.16”.

pages 121-2: if $n > 3$ then JSJ decompositions for PD_n -groups may be justified by the work of Scott and Swarup (see [127] and [128]). (Chapter 12 is based on [66], in which the extension of Wang’s work was restricted to PD_n groups with *max-c.*)

page 122, line 18, and page 125, Corollary 12.6.1: delete “(5,4c)”.

page 131, question (11): insert “indivisible” before “element”.

page 131, question (16): we do not ask that F be finitely generated!

page 136: question (61) appears to be open even for 3-manifolds.

REFERENCES

- [1] PD_3 -groups which are HNN extensions,
arXiv: 2004.03803 [math.GT]
- [2] PD_3 -pairs with compressible boundary,
arXiv: 2006.08057 [math.GT]. v4: 30 October 2020.
- [3] Kielak, D. and Kropholler, P. H. Isoperimetric inequalities for Poincaré duality groups, *is to appear in* Proc. Amer. Math. Soc. (2021).

Items [1] and [2] were written just too late for inclusion!