Qiu, Ruifeng; **Scharlemann, Martin**
A proof of the Gordon conjecture. (English) ⟦Zbl 1180.57025⟧
Adv. Math. 222, No. 6, 2085-2106 (2009).

The paper under review presents a combinatorial proof of the Gordon Conjecture which claims that the sum of two Heegaard splittings is stabilized if and only if one of the two summands is stabilized. If one summand is stabilized, then the sum is clearly stabilized. *C. McA. Gordon*, in Kirby's problem list [*R. Kirby* (ed.), Geometric topology. 1993 Georgia international topology conference, August 2–13, 1993, Athens, GA, USA. Providence, RI: American Mathematical Society. AMS/IP Stud. Adv. Math. 2(pt.2), 35-473 (1997; Zbl 0888.57014)] conjectured that the opposite direction also holds.

There should be a historical remark. In 2004, the first author of the present paper announced the proof of the conjecture. It was long and heavily combinatorial. The present paper arose from the second author's efforts to simplify and clarify the original ideas.

On the other hand, *D. Bachman* [Geom. Topol. 12, No. 4, 2327–2378 (2008; Zbl 1152.57020)] announced a proof of the conjecture. The first version needed an extra assumption, but a later version gives a full proof, which is also long and hard.

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MSC:

57M50   General geometric structures on low-dimensional manifolds

> Cited in **1** Review
> Cited in **15** Documents

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