

Rubinstein, J. Hyam**Dehn's lemma and the loop theorem.** (English) [Zbl 1056.57013](#)

Li, Benghe (ed.) et al., Low dimensional topology. Lectures presented during the program on low-dimensional topology held at the Morningside Center of Mathematics, Beijing, China, 1998/1999. Somerville, MA: International Press (ISBN 1-57146-112-4/pbk). New Stud. Adv. Math. 3, 61-68 (2003).

The article contains a concise, elementary and self-contained introduction to normal surfaces in triangulated 3-manifolds with the fundamental Haken results. A proof of Dehn's Lemma and the loop theorem is then given along the lines of *K. Johannson* [Lect. Notes Geom. Topol. 3, 47–54 (1994; [Zbl 0862.57006](#))]. The general idea is explained without working out the details.

For the entire collection see [\[Zbl 1034.57002\]](#).

Reviewer: [G. Burde \(Frankfurt / Main\)](#)

MSC:

57M35 Dehn's lemma, sphere theorem, loop theorem, asphericity (MSC2010)

Keywords:

[normal surfaces](#); [triangulated 3-manifolds](#)