

1059-57-114

**Loretta Bartolini\*** ([bartolini@math.okstate.edu](mailto:bartolini@math.okstate.edu)), Department of Mathematics, 401  
Mathematical Sciences, Stillwater, OK 74078-1058. *One-sided Heegaard splittings and Dehn  
filling.*

Heegaard splittings along orientable surfaces are well-known in 3-manifold theory: the manifold is split into a pair of handlebodies, the embedded discs for which can be used combinatorially to obtain information about both the splitting and the manifold. However, when a non-orientable surface is used in an orientable manifold, the associated Heegaard splitting is one-sided and a single handlebody is obtained.

There are many natural parallels between one- and two-sided Heegaard splittings, however there are striking and far-reaching differences: the presence of singular meridian discs; and, the connection with  $\mathbb{Z}_2$  homology. Both properties serve to hamper existing methods, whilst offering new approaches.

Given the direct connection between geometrically incompressible splittings and  $\mathbb{Z}_2$  homology classes of the manifold, a finer degree of control of one-sided splitting surfaces can be established over their two-sided counterparts. In particular, a recent result determines possible isotopies of incompressible non-orientable surfaces under Dehn filling. (Received February 20, 2010)