

# Filling volume and simplicial volume of mapping tori

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**Abstract:** Let  $M$  be a closed orientable  $n$ -manifold.

The *Real Filling Volume* and the *Integral Filling Volume* are numerical invariants on the set of orientation preserving self-homotopy equivalences of  $M$ , which are defined in terms of filling norm on the space of boundaries of  $M$ .

We will study several properties of these two invariants and state some vanishing results.

We will investigate the (strong) relations between the real filling volume of an homeomorphism  $f$  and the simplicial volume of the mapping torus of  $f$  and the (less strong) relations between the integral filling volume of  $f$  and the stable integral simplicial volume.

Finally, we will see possible applications of these two invariants.