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**Patrick M Gilmer\*** (gilmer@math.lsu.edu) and **Gregor Masbaum.** *Maslov index, Lagrangians, Mapping Class Groups and TQFT.*

Given a mapping class  $f$  of an oriented surface  $\Sigma$  and a lagrangian  $\lambda$  in the first homology of  $\Sigma$ , we define an integer  $n_\lambda(f) \pmod{4}$ . We use  $n_\lambda(f)$  to describe a universal central extension of the mapping class group of  $\Sigma$  as an index-four subgroup of the extension constructed from the Maslov index of triples of lagrangian subspaces in the homology of the surface. We give two formulas for  $n_\lambda(f)$ . One is topological using surgery, the other is homological and builds on work of Turaev and work of Walker. Some applications to TQFT are discussed. (Received February 05, 2010)