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Miguel A. Xicotencatl* (xico@math.cinvestav.mx), Depto. de Matemáticas, CINVESTAV,
Ave. IPN 2508, 07360 Mexico City, Mexico. *On mapping class groups of non-orientable surfaces.*

The mapping class group (m.c.g.) Γ_g^+ of an oriented surface M_g , is the group of isotopy classes of orientation preserving diffeomorphisms of M_g . Variations of this group include the full m.c.g. Γ_g^\pm , and the m.c.g. with marked points. Recently, the study of m.c.g.'s has also been extended to the non-orientable case. For instance, N. Wahl proved the analogue of Harer's homology stability theorem in the non-orientable case, E. Hanbury extended this result to the case with marked points, while G. Hope and U. Tillmann studied the p -periodicity of the Farrell cohomology of $\Gamma(M)$. When considering all diffeomorphisms, one shows the m.c.g. of a surface M (oriented or not) with k marked points, surjects onto the full m.c.g. $\Gamma(M)$ with kernel $\tilde{\Gamma}^k(M)$, the reduced m.c.g. with k marked points. Moreover, using configuration spaces we construct a space with fundamental group $\tilde{\Gamma}^k(M)$. In the case when M is the projective plane or the Klein bottle, we use these spaces to study the cohomology of $\tilde{\Gamma}^k(M)$ and groups related to the braid groups of M . We also study the question of the p -periodicity in the case with marked points. This is joint work with Miguel A. Maldonado. (Received April 12, 2010)