Quaternionic covers and monodromy of the Kontsevich-Zorich cocycle in orthogonal groups. (English summary)


The moduli space of translation surfaces (that is, pairs \((M, \omega)\) where \(M\) is a compact Riemann surface of genus \(g \geq 1\) and \(\omega\) is a holomorphic 1-form on \(M\)) carries a natural action of \(SL_2(\mathbb{R})\). This has been used in multiple ways, including the study of translation flows and interval exchanges. The Kontsevich-Zorich cocycle plays a key role in many of the dynamical developments; the first author analysed the possible groups appearing in the Zariski closure of the monodromy of the cocycle up to finite index and compact factors [Duke Math. J. 166 (2017), no. 4, 657–706; MR3619303] and raised the question of whether this list of possibilities all arise. In the paper under review, a further contribution is made, using “origamis” (square-tiled surfaces) to find a Teichmüller curve containing a group not observed before in its monodromy. In addition, the multiplicities of representations in part of the cohomology of regular origamis are computed, answering a question raised by the third author, J.-C. Yoccoz and D. Zmiaikou [Ann. Inst. Fourier (Grenoble) 64 (2014), no. 3, 1131–1176; MR3330166].

**References**


Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.