ON SYMMETRIES IN (2+1)-DIMENSIONAL QUANTUM GRAVITY

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It is shown by Nelson, Regge and Zertuche that the algebra of observables of quantum gravity in the (2+1)-dimensional de Sitter space with space being a torus is related to the Fairlie–Odesskii algebra $U'_q(\mathrm{so}_3)$. The symmetry group of the algebra of observables turns out to be the modular group $\mathrm{PSL}(2,\mathbb{Z})$ of a torus. We construct representations of this group, corresponding to finite-dimensional representations of the algebra of observables.