

Hecke modifications, wonderful compactifications and moduli of principal bundles

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Abstract. In this paper we obtain parametrizations of the moduli space of principal bundles over a compact Riemann surface using spaces of Hecke modifications in several cases. We begin with a discussion of Hecke modifications for principal bundles and give constructions of “universal” Hecke modifications of a fixed bundle of fixed type. This is followed by an overview of the construction of the “wonderful,” or De Concini–Procesi, compactification of a semi-simple algebraic group of adjoint type. The compactification plays an important role in the deformation theory used in constructing the parametrizations. A general outline to construct parametrizations is given and verifications for specific structure groups are carried out.

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