

# Explicit Determination of the Picard Group of Moduli Spaces of Semistable $G$ -Bundles on Curves

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**Abstract** — This is a joint work with Arzu Boysal. Let  $G$  be a connected, simply-connected, simple affine algebraic group and  $\mathcal{C}_g$  be a smooth irreducible projective curve of any genus  $g \geq 1$  over  $\mathbb{C}$ . Denote by  $\mathfrak{M}_{\mathcal{C}_g}(G)$  the moduli space of semistable principal  $G$ -bundles on  $\mathcal{C}_g$ . Let  $\text{Pic}(\mathfrak{M}_{\mathcal{C}_g}(G))$  be the Picard group of  $\mathfrak{M}_{\mathcal{C}_g}(G)$ . We determine  $\text{Pic}(\mathfrak{M}_{\mathcal{C}_g}(G))$  and show that the theta bundles  $\Theta_V(\mathcal{C}_g, G)$ , where  $V$  runs over all the finite dimensional representations of  $G$ , generate  $\text{Pic}(\mathfrak{M}_{\mathcal{C}_g}(G))$ .

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