Representations with Weighted Frames and Framed Parabolic Bundles

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(joint with L. Jeffrey) There is a well-known correspondence, (due to Mehta and Seshadri in the unitary case, and extended by Bhosle and Ramanathan to other groups) between the symplectic variety M_h of representations of the fundamental group of a punctured Riemann surface into a compact connected Lie group G, with fixed conjugacy classes h at the punctures, and a complex variety $\mathcal{M}_h$ of holomorphic bundles on the unpunctured surface with a parabolic structure at the puncture points. For $G = SU(2)$, we build a symplectic variety P of pairs (representations of the fundamental group into G, "weighted frame" at the puncture points), and a corresponding complex variety $\mathcal{P}$ of moduli of "framed parabolic bundles", which encompass respectively all of the spaces M_h, $\mathcal{M}_h$, in the sense that one can obtain M_h from P by symplectic reduction, and $\mathcal{M}_h$ from $\mathcal{P}$ by a complex quotient. Aspects of the problem for other groups will be discussed.