



# GENERALIZED SEIBERG-WITTEN EQUATIONS ON A RIEMANN SURFACE

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**Abstract.** In this paper we consider twice-dimensionally reduced, generalized Seiberg-Witten (S-W) equations, defined on a compact Riemann surface. A novel feature of the reduction technique is that the resulting equations produce an extra “Higgs field”. Under suitable regularity assumptions, we show that the moduli space of gauge-equivalent classes of solutions to the reduced equations, is a smooth Kähler manifold and construct a pre-quantum line bundle over the moduli space of solutions.

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