Title Asymptotic behaviour of certain families of harmonic bundles on Riemann surfaces

Abstract Let $(E, \overline{\partial}_E, \theta)$ be a stable Higgs bundle of degree 0 on a compact connected Riemann surface. We are interested in the naturally associated family of harmonic bundles $(E, \overline{\partial}_E, t\theta, h_t)$ for $t > 0$. We discuss two results on the behaviour of h_t when t goes to ∞. First, we explain that the Hitchin equation is asymptotically decoupled under some assumption for the Higgs field. We apply it to the study of the so called Hitchin WKB-problem. Second, we show the convergence of the sequence h_t to a singular flat metric, in the case where the rank of E is 2. We describe the parabolic weights of the limit metric in terms of the Higgs bundle.