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I will report on joint work with Rafe Mazzeo, Jan Swoboda and Frederik Witt concerning the degeneration behavior of solutions to Hitchin's equation in the rank 2 fixed determinant case. More precisely, I will describe a class of singular solutions (so-called limiting configurations) which may be desingularized via gluing methods to exact solutions with large Higgs fields. Further, I will discuss first consequences for the asymptotics of hyperkähler metric on the Higgs bundle moduli space. (Received February 03, 2015)