**Abstract:** Through the Weil conjectures established by Deligne, one can obtain information about the topology of an algebraic variety X, by studying the number of rational points of X over various finite fields. If X is smooth this number of points can further be expressed as a p-adic integral, a technique pioneered by Denef-Loeser and Batyrev. Joint with Michael Groechenig and Paul Ziegler we apply this idea to moduli spaces of G-Higgs bundles, where G is a connected reductive group. In the case of G=SL\_n/PGL\_n this leads to a proof of the topological mirror symmetry conjecture of Hausel-Thaddeus, while for general G we obtain a new proof of the geometric stabilization theorem, a key ingredient in Ngô's proof of the fundamental lemma.