Given a finitely generated group \( F \) and a complex reductive Lie group \( G \), the \( G \)-character variety of \( F \), \( X_{FG} = \text{Hom}(F,G)/\!/G \), is typically a singular algebraic variety, defined over the integers, and some of its geometric, topological and arithmetic properties can be encoded in a polynomial generalization of the Euler-Poincaré characteristic: the \( E \)-polynomial. The most interesting cases are when \( F \) is the fundamental group of a Kähler manifold \( M \), since then \( X_{FG} \) is homeomorphic to a space of \( G \)-Higgs bundles over \( M \). In this seminar, concentrating in the case of the general linear group \( G = GL(n, \mathbb{C}) \), we present a remarkable relation between the \( E \)-polynomials of \( X_{FG} \) and those of \( X_{\text{irr}F,G} \), the locus of irreducible representations of \( F \) into \( G \). We will also give an overview of known explicit computations of \( E \)-polynomials, as well as some conjectures and open problems. (Received September 24, 2018)