NONABELIAN HODGE THEORY OVER COMPACT OR NONCOMPACT CURVES

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The area of nonabelian Hodge theory is concerned with the study of the first cohomologies (Dolbeault, de Rham, Betti) of a complex algebraic variety with nonabelian coefficients. The relevant algebraic objects involved, namely, stable Higgs bundles, stable $\mathcal{D}_X$-modules and irreducible fundamental group representations mark the richness of the different techniques one may implement in approaching their study. The rudiments of the theory are traced back to the celebrated Narasimhan-Seshadri theorem and has developed ever since in a remarkably wide range of directions. In this colloquium-style talk, we will explore some of these features in the case of compact or noncompact curves.