Lan, Guitang; Sheng, Mao; Zuo, Kang
Semistable Higgs bundles, periodic Higgs bundles and representations of algebraic fundamental groups. (English) \[Zbl 1444.14048\]

The article under review establishes a $p$-adic version of Simpson’s “Higgs versus Betti/de Rham” equivalence.


The authors also discuss the role of stability in this picture. Semistability of a graded Higgs bundle on the special fiber is shown to be equivalent to that the Higgs bundle supports a periodic Higgs-de Rham flow. The mod $p$ stability of a 1-periodic Higgs object corresponds to the absolute irreducibility of the mod $p$ representation of a crystalline $\mathbb{Z}_p$-representation under the equivalence.

Reviewer: Dingxin Zhang (Beijing)

MSC:
14F30 $p$-adic cohomology, crystalline cohomology
14G20 Local ground fields in algebraic geometry
14H60 Vector bundles on curves and their moduli
14F40 de Rham cohomology and algebraic geometry
14F35 Homotopy theory and fundamental groups in algebraic geometry

Keywords:
Higgs bundles; $p$-adic Hodge theory

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References: