HIGGS BUNDLES AND HIGHER TEICHMÜLLER SPACES

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Abstract. In these series of lectures, we consider the moduli space of $G$-Higgs bundles over a compact Riemann surface $X$, and its correspondence with the moduli space of representations of the fundamental group of $X$ in $G$, where $G$ is a semisimple real Lie group. Some connected components of the moduli space are mundane in the sense that they are distinguished only by obvious topological invariants or have no special characteristics. Others are more alluring and unusual either because they are not detected by primary invariants, or because they have special geometric significance, or both. We will focus on such special components — generally referred as higher Teichmüller components — for Lie groups of various types including split groups (Hitchin components), hermitian groups (maximal Toledo components), etc. We will finish with a general proposal for the identification of these components in Higgs bundle terms, and its relation to the notion of positivity for Anosov representations recently developed by Guichard–Wienhard.

References


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