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MAXIMAL REPRESENTATIONS, REAL SPECTRUM AND GEODESIC CURRENTS

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In this talk we will recall some basic features of the theory of maximal representations into $\mathrm{Sp}(2n, \mathbb{R})$ of fundamental groups of surfaces, possibly with punctures. We will then explain how the semi-algebraic nature of the character variety of maximal representations can be used to construct a compactification whose boundary points are representations over non-Archimedean real closed fields that are maximal in a certain sense. Such a representation gives naturally rise to an action on an affine building; we will show how to associate to such a representation a geodesic current whose intersection function reproduces the length function of the building action. We then discuss a structure theorem for geodesic currents which applied to the situation at hand gives information on the dynamics of the mapping class group on the Parreau compactification of the maximal character variety. We will illustrate the whole theory in the case of $\mathrm{SL}(2, \mathbb{R})$ where it is strongly connected to the Thurston compactification. This talk is based on joint work with A. Iozzi, A. Parreau and B. Pozzetti.