# Representations on vanishing cycles, trace formulas and boundaries

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In this talk we will consider a cohomological construction of representations, which was proposed by H. Carayol and used by M. Harris and R. Taylor in their proof of the local Langlands correspondence for GL(n).

This construction yields in particular a realization of the Jacquet-Langlands correspondence, and it will be shown how a purely local approach can lead to a proof of this result, assuming a suitable Lefschetz type trace formula for the etale cohomology of rigid-analytic spaces is available.

The non-compactness of the spaces under consideration has as a consequence that the trace of the Euler-Poincare characteristic of the cohomology is not equal to the number of fixed points.

In fact, a 'boundary term' comes in, and the problem is to show that this term is a sum of characters of parabolically induced representations. In the second part of the talk we will discuss ways to compactify the spaces and we will study their boundaries.