

**POTENTIAL AUTOMORPHY FOR RESIDUAL
REPRESENTATIONS INTO GL_n**

We prove that for any residual representation of the absolute Galois group G_F of a CM number field F , we can take an imaginary CM extension F'/F linearly disjoint from any given finite extension of F such that the restriction of the representation to $G_{F'}$ is automorphic. A general approach to derive such potential automorphy results from automorphy lifting theorems is the so-called p, q -switch trick. This involves a type of Dwork motive over F' whose associated q -adic representation is isomorphic to a simple automorphic representation, and whose associated p -adic representation reduces to the given residual representation. To find such a motive, the problem is reduced to finding an F' -point of a certain moduli space. Previous results work with representations into GSp_n , partly because of the restraint of the automorphy lifting techniques available at that time. Now with the ten author paper, we modify the motive and its corresponding moduli space to apply similar methods.