Wushi Goldring* (wushijig@gmail.com) and Jean-Stefan Koskivirta. Strata Hasse invariants, Hecke algebras and Galois representations.

I will try to motivate and then state some of the results from my joint work with Jean-Stefan Koskivirta which bears the same name and is available at arXiv:1507.05032. For each Ekedahl-Oort stratum of a general Hodge-type Shimura variety, we construct a Hecke-equivariant section of the Hodge line bundle which cuts out the smaller strata in its closure. We call these sections “group-theoretical Hasse invariants.” Using them as our main tool, we are able to: (1) Attach Galois representations to many automorphic representations with non-degenerate limit of discrete series archimedean component, generalizing work of Deligne-Serre, Taylor, Jarvis, Goldring and Goldring-Nicole (2) Attach pseudo-representations to torsion classes in the coherent cohomology of many Hodge-type Shimura varieties, generalizing the work of Emerton-Reduzzi-Xiao (3) Prove that all Ekedahl-Oort strata are affine, both for a general compact Shimura variety of Hodge-type and for the minimal compactification of a Siegel-type Shimura variety, thereby proving a conjecture of Oort (4) Generalize (part of) Serre’s letter to Tate on mod p forms to general Hodge-type Shimura varieties, refining (parts of) previous results in some PEL cases due to Ghitza and Reduzzi. (Received August 10, 2015)