1112-11-633 **Mohammad Hadi Hedayatzadeh***, hedayatzadeh@purdue.edu. *The wedge map on the Lubin-Tate space.*

p-divisible groups are smooth formal groups which naturally arise as limits of p-power torsion in algebraic groups. The Serre-Tate theorem states that the deformations of an abelian variety is equivalent to the deformations of its p-div. group, and so there is a deep connection between modular forms, which live in the cohomology of moduli spaces of abelian varieties (Shimura varieties) and deformations of p-div. groups (Rapoport-Zink spaces). These spaces appear naturally in the Langlands program. Indeed, the local Langlands correspondence for GLn is realized in the cohomology of Lubin-Tate space. Kottwitz' conjecture posits that certain cases of local Langlands correspondence (for more general reductive groups) are realized in the cohomology of Rapoport-Zink spaces and whether they contain supercuspidal representations. I will talk about p-div. groups and their deformations. I will then discuss my recent proof of the existence of exterior powers of p-div. groups and explain how their construction defines a natural map between certain Rapoport-Zink spaces. If time permits, I will also talk about the applications to the study of certain supercuspidal representations appearing in the cohomology of Rapoport-Zink spaces. (Received August 11, 2015)