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Elena Mantovan* (mantovan@caltech.edu), Pasadena, CA 91125. *Geometric realization of p -adic automorphic forms on unitary Shimura varieties.*

The notion of a p -adic modular form (a p -adic analogue of classical modular forms) was first introduced by Serre in 1973 via the q -expansion principle. Soon afterwards, Katz gave a new definition via the geometry of modular curves. The p -adic theory provides the appropriate framework for the study of congruences among classical forms, and p -adic interpolation (i.e. the construction of families of classical forms which converge p -adically) is a crucial tool behind many important arithmetic results on classical modular forms.

Automorphic forms are a vast generalization of modular forms. Yet, in recent years, many arithmetic properties of modular forms were extended to automorphic forms, with stunning consequences. In this talk we will introduce the notions of classical and p -adic automorphic forms over Shimura varieties. We will mostly focus on aspects of the p -adic theory related to Hida's Igusa tower, the q -expansion principle and their application to the construction of p -adic families of automorphic forms. (Received February 05, 2018)