

ALGEBRA  
SEMINAR

*Convergent Decomposition Groups and an  $S$ -adic Shafarevich  
Conjecture*

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**Abstract:** Local-global principles for rational points have a long and influential role in arithmetic geometry. Our focus will be on what a universal local-global principle for rational points implies about the Galois theory of the field, especially fields of totally  $S$ -adic numbers, where  $S$  is an infinite set of places. Some applications of our work include: (i) new evidence for the Shafarevich Conjecture on the freeness of the absolute Galois group of the maximal cyclotomic extension of  $k$ ; (ii) "independence" of the decomposition groups above infinite families of primes. Time permitting, we will also mention several areas for future work.

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MATHEMATICS  
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