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**Saikat Biswas\*** ([saikat.biswas@asu.edu](mailto:saikat.biswas@asu.edu)), School of Mathematical & Statistical Sciences, Arizona State University, Tempe, AZ 85287. *Capitulation, unit groups, and the cohomology of  $S$ -idèle classes*. Preliminary report.

Suppose that  $L/K$  is a finite, cyclic extension of number fields with Galois group  $G$ . Let  $S$  be a finite set of primes of  $K$  that contains all the infinite primes. The extension of ideals from  $K$  to  $L$  induces the  $S$ -capitulation map, whose kernel classifies the  $S$ -ideal classes in  $K$  that become principal in  $L$ . In this talk, we first interpret the kernel and cokernel of the  $S$ -capitulation map in terms of  $C_{L,S}$ , the  $S$ -idèle class group of  $L$ . We then relate the arithmetic of  $C_{L,S}$  to that of  $U_{L,S}$ , the group of  $S$ -units of  $L$ . We show that many known results in algebraic number theory, in particular Hilbert's Theorem 94, follow as a direct consequence of our idèle-theoretic results. (Received September 17, 2016)