PICARD GROUPS OF QUOTIENT RING SPECTRA

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Venue: Room 102, SCMS

Abstract: In classical algebra, the Picard group of a commutative ring R is invariant under quotient by nilpotent elements. In joint work with Ishan Levy and Guchuan Li, we study Picard groups of some quotient ring spectra. Under a vanishing condition, we prove that Pic(R/v^{n+1}) --> Pic(R/v^n) is injective for a ring spectrum R such that R/v is an E_1-R-algebra. This allows us to show Picard groups of quotients of Morava E-theory by a regular sequence in its π _0 are always ℤ /2. Running the profinite descent spectral sequence from there, we prove the Picard group of any K(n)-local generalized Moore spectrum of type n is finite. At height 1 and all primes p, we compute the Picard group of K(1)-local S^0/p^k when k is not too small.