

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 $\text{Pic}(R/v^{\{n+1\}}) \rightarrow \text{Pic}(R/v^n)$ 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 $\mathbb{Z}/2$. 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.