

## Commutative Algebra Seminar

### *Characterizing $F$ -singularities using log discrepancies of semivaluations*

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**Abstract:** We have long known, or implicitly used, that to a potential splitting  $\phi$  of the Frobenius homomorphism on a ring  $R$  of positive characteristic one can assign a divisor on  $\text{Spec}(R)$ , and these divisors describe the Frobenius splitting behavior of  $\phi$  at height one primes. We generalize this process and assign coefficients called log discrepancies to valuations on  $\text{Spec}(R/P)$  for primes  $P$  of  $R$ . Using these log discrepancies, we can characterize the Frobenius splitting behavior of  $\phi$  at any point of  $\text{Spec}(R)$ .

Monday, October 17 at 1:00 PM in SEO 427