

Babak Jabarnejad, University of Arkansas, Fayetteville

Title of Talk: "Computational aspects and equations of the multi-Rees algebras"

The Rees algebra  $R[It]$  plays an important role in commutative algebra because it encodes the asymptotic behavior of the ideal  $I$ . An important problem in the theory of Rees algebras is to determine defining equations of the Rees algebras. More generally, given any ideals  $I_1, \dots, I_r$  in a ring  $R$ , one would like to describe defining equations of the multi-Rees algebra  $R[I_1t_1, \dots, I_rt_r]$ . This is a problem in pure algebra but when we deal with ideals in a polynomial ring we may use computational methods to find the equations. In this talk I describe defining equations of the multi-Rees algebras of certain family of ideals using results in pure and computational commutative algebra. To do this I start the talk by discussing some concepts in computational commutative algebra.