

*Department of Mathematics,  
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# Math 206A/Algebraic Geometry Seminar

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University of Utah

## Homological conjectures and big Cohen-Macaulay algebras

**Abstract:**

I will talk about joint work with Raymond Heitmann that gives a construction of big Cohen-Macaulay algebra in mixed characteristics following the recent breakthroughs on the direct summand conjecture by André and Bhatt. In fact, we prove a weakly functorial version for certain surjective ring homomorphism that leads to the solution of the vanishing conjecture for maps of Tor in mixed characteristic. Our work also gives a simplified proof of the direct summand conjecture, and that direct summand of regular rings are Cohen-Macaulay.

Host: Kiran Kedlaya

**Friday, April 21, 2017**

**12:00 PM**

**AP&M 6402**

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