Explorations of the Role of Artin Algebras in Algebraic Geometry

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October 27, 2015

For my term paper, I am interested in Chapter 4 of the book, *Computational Methods in Commutative Algebra and Algebraic Geometry* by Wolmer Vasconcelos. This chapter focuses on the computations of Artin Algebras and its applications to solving systems of polynomial equations. Also, the chapter offers many tricks for extracting idempotents. I would like to study this field of algebra I am not familiar with to see how they relate to the topics we have studied in this class. I am hoping that I will learn a new perspective on what Algebraic Geometry has to offer. I also plan to advance my knowledge of Algebra as a result of the process of trying to learn the theory behind Artin Algebras. I am a bit unsure on how far I will get in the material, but I hope to write as much as my current algebra skills allow me to understand.