

UMW Colloquium Announcement
Department of Mathematics

Using Polynomial to Build Robots (And do other cool things)

Presented by

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Abstract: Polynomials are some of the simplest functions, and some of the first learned about in school. However, this is for good reason, as many applications in physics, chemistry, economics, and many other fields, are described mathematically by one or many polynomial functions. The task of finding where these functions are equal to zero is crucial to these applications. There are many methods for finding such zeros symbolically, i.e. the quadratic formula. However, in most situations finding an exact zero is either impossible, or very expensive. Therefore, we consider methods of approximating the zeros of polynomials. This talk will describe a method called homotopy continuation to approximate the zeros of polynomials. This method uses the special properties of polynomials to efficiently and accurately obtain solutions. We then discuss multiple applications of this method and the use of polynomials in practical science.

