Texas Tech University. Analysis Seminars.

How to solve a Riccati equation ?

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ABSTRACT. In this talk, we discuss a family of ODE's known as Riccati equations and their role in computing the index of free boundary minimal catenoids. In dimension two, the parameter function is explicit and those Riccati equations can be solved exactly. In higher dimensions, the parameter function is given by the inverse of an integral function and exact solution is not available. To overcome this difficulty, we use numerical methods for finite dimensions and asymptotic and rescaling methods for dimensions going to infinity. This is based on a joint work with Ari Stern, Graham Smith, and Detang Zhou.