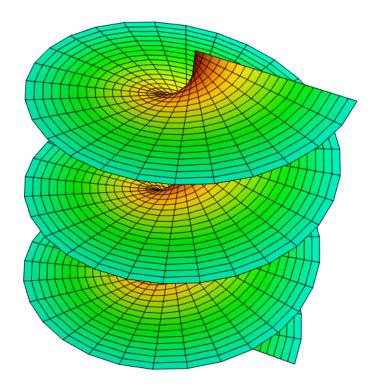# A HITCHHIKERS GUIDE TO RIEMANN SURFACE THEORY

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Riemann surfaces are one dimensional complex manifolds and arise quite naturally as covering spaces. Moreover, every compact Riemann surface is obtained from an algebraic equation! In this talk, we go through basic examples and properties of Riemann surfaces, building up to the Riemann-Hurwitz formula and the Riemann-Roch theorem. We will then show a few applications of these results. If time permits, we may also discuss the Abel-Jacobi theorem. Familiarity with complex analysis will be helpful, but will not be necessary.