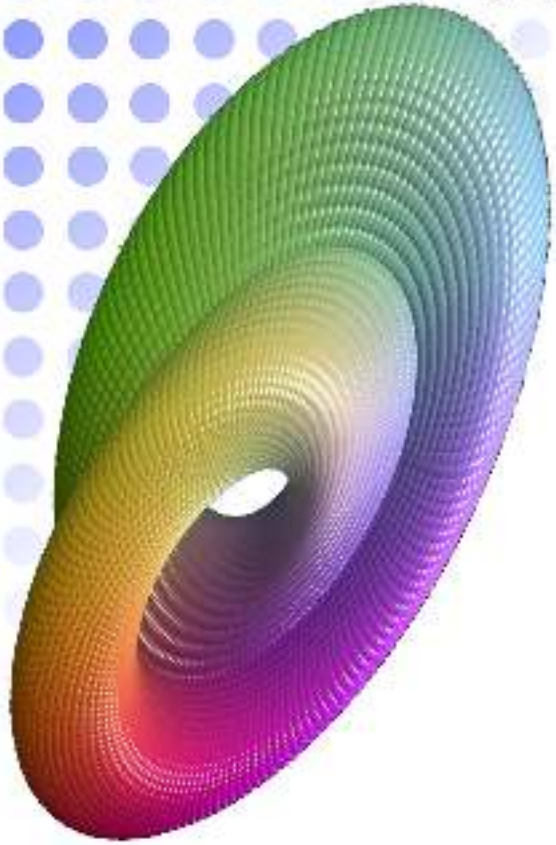
Michigan Math Club

Thursday at 4pm in the Commons

Free Pizza and Pop



π!: Extending the Factorial Function

M Cap Khoury

Abstract for 7 October 2010

What should we mean by π!? The gamma function Γ(s) is a well-known way to extend n! to (almost) all the complex numbers. But is it fair to call Γ(s), as many people do, *the* extension of n!? It isn't the only function which agrees (after a shift) with n! on the natural numbers, not even the only meromorphic one. We will review Γ(s) and the uniqueness properties it does (and doesn't) have; we will also introduce the Hadamard function and, time permitting, other interesting extensions of n!. For dessert, we will present Manjul Bhargava's wonderfully elegant generalized factorial construction. This talk is aimed primarily at upper-level undergraduate math majors but should have something for everyone.