

APPLIED MATHEMATICS COLLOQUIUM

Date: Wednesday, September 28, 2016

Time: 2:30 – 3:30 p.m.

Location: Middlesex College Room 204

Riemann surfaces and Branch cuts

Dr. David Jeffrey

Department of Applied Mathematics

University of Western Ontario

Abstract: In a first course on complex variables, students learn that the n th-root of a complex number has n values. For most, this is their introduction to multi-valued functions. For both humans and computer systems, understanding and working with multi-valued functions is a challenge. The fact that there are several schools of thought only makes matters worse. In this talk, I shall review two ways of looking at multi-valued functions: branch cuts, used by computer algebra systems, and Riemann surfaces, preferred by visual mathematicians. I shall then show how one can switch from one to the other. Along the way, I shall talk about modifications to standard notation, which help this.