Mathematics Department
University of Fribourg

Tuesday, 8/11/2016

Time: 12:15 pm
Physics building
Lecture room 2.73

Mathematikon

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The Geometry of Complex Numbers

Abstract:

In secondary school, complex numbers are usually introduced as follows: We want to solve the equation

$$x^2 + 1 = 0$$

and therefore we invent *an imaginary number i so that $i^2 + 1 = 0$. This is quick and seemingly painless. The drawback is that it makes complex numbers look like a mathematician's gimmick. At the very latest when confronted with their applications in physics this point of view becomes unsatisfactory.*

The goal of this talk is to give an alternate approach to complex numbers by considering rotations of the plane. This is purely geometric and does not involve inventing *anything mysterious. We will see how this is equivalent to the traditional definition. Furthermore this approach raises interesting and far-reaching questions about the interrelation of geometry and algebraic structures that we will try to discuss at the end.*

The talk is geared towards 1^{st} and 2^{nd} year students, but everyone is welcome!

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