

General Mathematics Seminar
of the
University of Luxembourg
in cooperation with the
Luxembourg Mathematical Society

November, 2012

Tuesday, November 20, 2012, at 17:00

Campus Kirchberg, Room B02

Ryan Peter
(university of Luxembourg)

Mathematical Challenges in Information Security.

Abstract: In this talk I will outline some of the mathematical challenges that arise in information security, with particular focus on designing and analysing voter-verifiable voting schemes.

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Tuesday, November 27, 2012, at 17:00

Campus Kirchberg, Room B02

Reich Ludwig
(Karl-Franzens-Universität Graz)

Variations of the Lemma of Herglotz.

Abstract:

Let g be an entire function and assume that

$$g(z) = \frac{1}{2}g\left(\frac{z}{2}\right) + \frac{1}{2}g\left(\frac{z+1}{2}\right), \quad z \in \mathbb{C}$$

holds. Then g is a constant.

G. Herglotz gave a very elegant and short proof of this fact which is, together with its multiplicative version, very useful in the theory of special functions in the complex domain. (Later on it turned out that F. Schottky had published another proof long before Herglotz.)

In our talk we study generalizations of the form

$$p_0(z)g(z) = \sum_{j=1}^N p_j(z)g(\alpha_j z + \beta_j), \quad z \in \mathbb{C}. \quad (1)$$

Here g is again an entire function, p_j ($0 \leq j \leq N$, $N \in \mathbb{N}$) is a polynomial and $p_0(z)g(z)$ is a "dominant" term. We are interested in sufficient conditions such that each entire solution g of (1) is a polynomial. Under these conditions we will also give an explicit estimate of the degree of such a solution.