

SEMINÁRIO

23 de Novembro de 2007

(Departamento de Matemática, sala Sousa Pinto, 11:30-12:30)

Primeira parte (11:30 - 12:00):

Título: On generalized differential quotients and invariance of differential inclusions.

Orador: Ewa Girejko, Faculty of Computer Science, Bialystok Technical University - Poland.

Resumo: A generalized derivative, *generalized differential quotients* (GDQs), introduced recently by H. Sussmann will be presented. It allows to differentiate nonsmooth single-valued maps and set-valued maps (maps that have sets as their values). Since GDQs of a set-valued map is not unique, the idea of minimal GDQs will be shown. Finally, we present an application of generalized differential quotients to invariance problem of differential inclusions.

Segunda parte (12:00 - 12:30):

Título: Remarks on generalized series on time scales.

Orador: Dorota Mozyrska, Faculty of Computer Science, Bialystok Technical University - Poland..

Resumo: A short introduction to time scale calculus with examples of Delta-derivatives and integrals will be presented. Then will be introduced the notion of generalized polynomials and Taylor's formula on time scales. Next polynomial series on a time scales will be defined and some operations on them will be described. As a particular example will be shown the Taylor's series of the graininess functions on the scale of harmonic numbers. The main part will be connected with the problem of the multiplication rule

of generalized polynomials where the formula for the multiplication by h_1 will be given. Also some example of using this formula for q -scale case will be presented.