

Dilluns 8 de juliol del 2013, 15:00h

Aula A1 (CRM).

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**On some problems in the theory of model spaces  
and Dolzhenko-Spijker lemma****KONSTANTIN FEDOROVSKIY**

Bauman Moscow State Technical University (Moscow, RU)

**ABSTRACT:** In the talk it is planned to discuss several problems in the theory of model spaces (that is, the subspaces of the Hardy space  $H^2$  which are invariant under the backward shift operator). We are interested in problems about existence of univalent functions in model spaces, about boundary behavior of such functions and in the problem about taking roots in model spaces. These problems are concentrated around the concept of a Nevanlinna domain so they are inspired by problems of approximability of functions by polyanalytic polynomials.

Furthermore in the talk it is planned to discuss the Dolzhenko-Spijker lemma and its special modifications. This lemma asserts that the image of the unit circle under a complex rational map  $f \in \mathcal{R}_n$  ( $\mathcal{R}_n$  being the set of all rational functions of degree at most  $n$  with no poles on the unit circle) has length at most  $2\pi n$  (the constant  $2\pi$  here is sharp). We are interested in modification of this lemma for univalent rational functions.