The 2nd Combinatorics Day

Saturday, 17th of March of 2012

DMUC, room 2.5

Abstracts

18:00-18:30 **Rui Duarte** (CIDMA,UA):

On the convolution of central binomial coefficients

Abstract: We give a direct combinatorial proof of the identity

$$\sum_{i+j=n} \binom{2i}{i}\binom{2j}{j} = 4^n$$

by counting pairs of k-subsets of $2k$-sets. Then we present a generalization of this identity and a closed-form expression for the ordinary generating function of the sequence $\left(\binom{2n+k}{n}\right)_{n \in N_0}$, where $k \in R$. This is a joint work with António Guedes de Oliveira.