Algebra and Number Theory Seminar

Title: Deletion-Insertion Correcting Codes and Robust Watermarking

Speaker: Hans-Georg Schaathun (University of Surrey)

Date: Mon 25th February 2008 at 4:00PM

Location: Mathematical Sciences Seminar Room

Abstract: Robust watermarking aims to embed a message in a host file such as an image, in such a way that an attacker cannot remove the message without also destroying the host. Applications have been suggested in copyright protection.

Some of the most difficult attacks to counter are local geometric distortion, which (for instance) occur during printing and scanning. The classic stirmark attack mimicks the effect of print and scan. The visual effect of these attacks appear as insertions and deletions of pixels, shifting segments of the image by one (or more) pixel(s).

The problem is similar to synchronisation in classical communications system, and deletion-insertion correcting codes have been suggested to solve it. Many interesting open problems, in different fields, appear when we try to realise such a system.

The talk will present the background of the problem, as well as new results on deletion-insertion correcting codes based on an inner code due to Davey and MacKay, and outer non-binary turbo codes.

mailto:gary.mcguire at ucd.ie