Seminari de Geometria Algebraica 2016-2017
Divendres 5 de maig a les 15:00, aula T2 FMI–UB
http://www.ub.edu/sga/

---

# Error-Correcting Codes: mathematical and computational aspects

Sebastià Xambó-Descamps
Universitat Politècnica de Catalunya

This talk will have two parts. In the first, the family of alternant block-error correcting codes (and some important subfamilies, like Reed-Solomon, Bose-Chaudhuri-Hocquenghem, and classical Goppa codes) will be reviewed and two general decoding algorithms will be described. The second part will be focused on three aspects of algebraic geometry codes: mathematical structure, search for curves over finite fields with many rational points, and decoding algorithms. All along, some of the computations will be illustrated by means of a package (PyCC) developed in collaboration with Narcís Sayols (work in progress). Rafel Farré is to be acknowledged for his collaboration on an improvement of the PGZ decoder for alternant codes, and Santiago Molina for improved procedures to count points on curves.

---

Universitat de Barcelona
Universitat Politècnica de Catalunya BarcelonaTech
Universitat Autònoma de Barcelona