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Editorial

Mathematical coding theory and its applications

Patrick Solé*

I2M, (CNRS, University of Aix-Marseille, Centrale Marseille), Marseilles, France

* **Correspondence:** Email: patrick.sole@telecom-paris.fr.

This special issue collects 8 papers on “Mathematical Coding Theory and its Applications”. Coding theory is noteworthy for requiring many techniques from commutative algebra (ring theory especially), geometry of numbers, and generally discrete mathematics. The themes present in this issue are

- codes over rings (non-commutative, non-unitary, others);
- codes for alternative metrics (Lee, Euclidean);
- codes as ideals in special rings (polynomial and skew-polynomial rings).

The lion’s share (5 papers) studies codes over rings. Two of these tackle codes over non-unitary rings (one is dedicated to mass formulas, and the other a construction from 3-class association schemes). A very interesting non-commutative ring is the ring of two by two matrices over finite fields ($M_2(F_2)$). A very complex polynomial ring yields quantum codes. The ring of integers modulo prime powers leads to codes for the Lee and Euclidean distance.

Codes over fields are considered by two papers one on finite fields (LCD code) and the other on number fields (BCH codes). One paper is studying frequency-hopping sequences over finite fields.

Guest Editor:

Professor Patrick Solé, I2M, (CNRS, University of Aix-Marseille, Centrale Marseille), Marseilles, France

Email: patrick.sole@telecom-paris.fr.

Conflict of interest

The author declares no conflict of interest.



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