Space-time codes coming from elliptic curves.

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Abstract:
Space-time codes are sets of matrices used to make digital transmission for multiple-transit antenna systems more reliable. The most famous constructions come from representations of associative division algebras over number fields, but one can equally well use representations of the less familiar non-associative division algebras. I will discuss how the theory of elliptic curves can be used to build or classify 3- and 4-dimensional non-associative division algebras over number fields.