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Hiram H. Lopez* (h.lopezvaldez@csuohio.edu), **Gretchen L. Matthews** and **Ivan Soprunov**. *Monomial-Cartesian codes and their duals, with applications to LCD codes, quantum codes, and locally recoverable codes.*

A monomial-Cartesian code is an evaluation code defined by evaluating a set of monomials over a Cartesian product. It is a generalization of some families of codes in the literature, for instance toric codes, affine Cartesian codes and J -affine variety codes. In this talk we use the vanishing ideal of the Cartesian product to give a description of the dual of a monomial-Cartesian code. Then we use such description of the dual to prove the existence of quantum error correcting codes and MDS quantum error correcting codes. Finally we show that the direct product of monomial-Cartesian codes is a locally recoverable code with t -availability if at least t of the components are locally recoverable codes. (Received August 22, 2019)