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**Shuhong Gao\*** ([sgao@math.clemson.edu](mailto:sgao@math.clemson.edu)), Department of Mathematical Sciences, Clemson University, Clemson, SC 29634-0975. *Construction of Linear Codes via Grobner bases*. Preliminary report.

We present a new construction of linear codes using Grobner bases. It works for any field size and for any code length. The class of codes from this construction is rich in the sense that it includes most of the currently known good codes, e.g. the algebraic geometry one-point codes, as special cases. We can also search for good codes over fields where the algebraic geometry approach is hard to apply. For example, the construction of the well-known Hermitian codes works for fields whose sizes are perfect square, but if the field size is not a square then it is not known in general how to get good codes using algebraic curves over this field. Our construction enables us to search for good codes over finite fields of any sizes.

Another important feature of our method is that there is a decoding algorithm for the codes constructed. We shall present computational data on its practical performance.

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