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**Daniel Panario\*** ([daniel@math.carleton.ca](mailto:daniel@math.carleton.ca)). *Construction of Irreducible Polynomials through Rational Transformations.*

Let  $\mathbb{F}_q$  be the finite field with  $q$  elements, where  $q$  is a power of a prime. We discuss recursive methods for constructing irreducible polynomials over  $\mathbb{F}_q$  of high degree using rational transformations. In particular, given a divisor  $D > 2$  of  $q + 1$  and an irreducible polynomial  $f \in \mathbb{F}_q[x]$  of degree  $n$  such that  $n$  is even or  $D \not\equiv 2 \pmod{4}$ , we show how to obtain from  $f$  a sequence  $\{f_i\}_{i \geq 0}$  of irreducible polynomials over  $\mathbb{F}_q$  with  $\deg(f_i) = n \cdot D^i$ . (Received August 04, 2020)