Exposé court

132 GCD problems in algebraic groups

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The Ailon–Rudnick conjecture states that $\gcd(2^n-1, 3^n-1) = 1$ for infinitely many n. While this is still unsolved, its counterpart for large values of this GCD is the Bugeaud–Corvaja–Zannier method employing the Subspace Theorem. Silverman showed how this can be generalized in a natural way to associate, to any orbit in an algebraic group, a geometric divisibility sequence. With this, one can consider variants of this problem which are amenable to a variety of methods; in particular, we shall see an overview of recent progress in the case where the group is *not* a semiabelian variety, which is linked to CM theory and ideas in arithmetic statistics.