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Polynomials whose reducibility is related to the Goldbach conjecture

In this talk, we introduce a collection of polynomials F_N, associated to each positive integer N, whose divisibility properties yield a reformulation of the Goldbach conjecture. While this reformulation certainly does not lead to a resolution of the conjecture, it does suggest two natural generalizations for which we provide some numerical evidence. As these polynomials F_N are independently interesting, we further explore their basic properties, giving, among other things, asymptotic estimates on the growth of their coefficients.

This is a joint work with Peter Borwein, Greg Martin, and Charles Samuels.