1171-52-164   **Matthias Beck*** (`mattbeck@sfsu.edu`), **Sophia Elia** and **Sophie Rehberg**. *Rational Ehrhart Theory.* Preliminary report.

The *Ehrhart quasipolynomial* of a rational polytope P encodes fundamental arithmetic data of P, namely, the number of integer lattice points in positive integral dilates of P. Ehrhart quasipolynomials were introduced in the 1960s, satisfy several fundamental structural results and have applications in many areas of mathematics and beyond. The enumerative theory of lattice points in *rational* (equivalently, real) dilates of rational polytopes is much younger, starting with work by Linke (2011), Baldoni-Berline-Koeppe-Vergne (2013), and Stapledon (2017). We introduce a generating-function *ansatz* for rational Ehrhart quasipolynomials, which unifies several known results with classical Ehrhart quasipolynomials, as well as generalized reflexive polytopes studied by Fiset-Kasprzyk (2008) and Kasprzyk-Nill (2012). (Received August 10, 2021)