1142-13-148   **Kriti Goel** and **Vivek Mukundan*** (`vm6y@virginia.edu`), 141 Cabell Drive, Office 131, Charlottesville, VA 22902, and **Jugal K Verma**. *Tight closure of powers of ideals and tight Hilbert polynomials.*

Let $(R, \mathfrak{m})$ be an analytically unramified local ring of positive prime characteristic p. For an ideal I, let I^* denote its tight closure. We introduce the tight Hilbert function $H_I^*(n) = \ell(R/(I^n)^*)$ and the corresponding tight Hilbert polynomial $P_I^*(n)$ where I is an $\mathfrak{m}$-primary ideal. It is proved that F-rationality can be detected by the vanishing of the first coefficient of $P_I^*(n)$. We find the tight Hilbert polynomial of certain parameter ideals in hypersurface rings and Stanley-Reisner rings of simplicial complexes. (Received September 01, 2018)