1145-03-953 **Kenneth Kramer** and **Russell Miller*** (`russell.miller@qc.cuny.edu`), Mathematics Dept., Queens College, 65-30 Kissena Blvd., Queens, NY 11367. *Hilbert's Tenth Problem as a Pseudojump Operator.*

For a ring R, Hilbert's Tenth Problem is the set $HTP(R)$ of polynomial equations in several variables over R which have solutions in R. When we restrict our view to subrings R of $\mathbb{Q}$, we can therefore view HTP as an operator, mapping each subring (viewed as a subset of $\mathbb{Q}$) to a subset of $\mathbb{Z}[X_1, X_2, \ldots]$. As such, HTP satisfies Jockusch and Shore's definition of a *pseudojump operator*: by appropriate coding, we can consider it to map each subset of $\mathbb{N}$ to another subset of $\mathbb{N}$, and the resulting set $HTP(R)$ is uniformly computably enumerable in R, lying somewhere between R and its jump R' under Turing reducibility.

It is natural to ask whether this operator preserves Turing reducibility. We show that, unlike the true jump operator, it fails to do so: indeed, it can actually reverse Turing reductions. We also introduce a notion of completeness for sets under the HTP-operator, and show that, although very few sets are HTP-complete in this sense, every Turing degree contains an HTP-complete set. (Received September 17, 2018)