1126-11-393 **Kirsten Eisentraeger** (eisentra@math.psu.edu), State College, PA 16802, **Russell Miller** (russell.miller@qc.cuny.edu), New York, NY 11367, **Jennifer Park*** (jmypark@umich.edu), Ann Arbor, MI 48109, and **Alexandra Shlapentokh** (shlapentokha@ecu.edu), Greenville, NC 27858. *Hilbert's tenth problem for subrings of Q.*

Determining whether there is an algorithm that decides the $\mathbb{Q}$-solvability of polynomials with integer coefficients is a very difficult open problem, although we know that there are no algorithms that decides the $\mathbb{Z}$-solvability of polynomials by the work of Matiyasevich, Davis, Putnam, and Robinson. In this talk, we construct a ring R that is "close" to $\mathbb{Z}$: namely, a ring of the form $\mathbb{Z}[S^{-1}]$, where S is a "small" set of primes that are inverted in R. Then we will show that determining the R-solvability of polynomials is just as hard as determining the $\mathbb{Q}$-solvability of polynomials, using the notion of Turing equivalence. This work is joint with K. Eisentraeger, R. Miller, and A. Shlapentokh. (Received January 17, 2017)