1116-11-1893 **Katherine Thompson*** (kthompson0721@gmail.com). *The sum of four squares over real quadratic number fields.*

That the sum of four squares represents all positive integers is a well-known and celebrated result–there even is a formula for the number of represented (often presented in undergraduate number theory classes). What happens in the number field analogue? Using Siegel's theory of local densities and Hilbert modular forms, we will answer this question in the case of real quadratic number fields. This includes providing explicit (and, on occasion, sharp) bounds on the Eisenstein coefficients of the associated theta series. (Received September 21, 2015)