1053-13-80 **Nicholas Werner*** (werner@math.osu.edu), Department of Mathematics, The Ohio State University, 231 West 18th Ave, Columbus, OH 43210. *Integer-valued Polynomials over Quaternion Rings.*

When D is an integral domain with quotient field K, the ring $\text{Int}(D) = \{f(x) \in K[x] \mid f(D) \subseteq D\}$ of integer-valued polynomials over D has been extensively studied. We will discuss integer-valued polynomials over certain non-commutative rings. Specifically, let i, j, and k be the standard quaternion units satisfying the relations $i^2 = j^2 = -1$ and $ij = k = -ji$, and define $\mathbb{Z}Q := \{a + bi + cj + dk \mid a, b, c, d \in \mathbb{Z}\}$. Then, $\mathbb{Z}Q$ is a non-commutative ring that lives inside the division ring $\mathbb{Q}Q := \{a + bi + cj + dk \mid a, b, c, d \in \mathbb{Q}\}$. For any ring R such that $\mathbb{Z}Q \subseteq R \subseteq \mathbb{Q}Q$, we define $\text{Int}(R) := \{f(x) \in \mathbb{Q}Q[x] \mid f(R) \subseteq R\}$. In this talk, we will demonstrate that $\text{Int}(R)$ is a ring (it is non-trivial to verify that $\text{Int}(R)$ is closed under multiplication) and discuss some specific results concerning the ring $\text{Int}(\mathbb{Z}Q)$ and its prime ideals. (Received August 21, 2009)