The stable rank of a ring $R$, denoted by $\text{s.r.}(R)$, is an important invariant in algebraic K-theory with the property that, when $\text{s.r.}(R) = n$, then every invertible matrix over $R$ can be reduced to an $n \times n$ matrix by elementary row and column operations. For commutative $R$, $\text{s.r.}(R) - 1$ compares to $\dim(R)$, the Krull dimension. In fact, for commutative Noetherian $R$, $\text{s.r.}(R) - 1 \leq \dim(R)$.

The ring of integer-valued polynomials $\text{Int}(\mathbb{Z})$, a non-Noetherian 2-dimensional Prüfer domain, consists of those polynomials in $\mathbb{Q}[x]$ that map every integer to an integer:

$$\text{Int}(\mathbb{Z}) = \{ f \in \mathbb{Q}[x] \mid f(\mathbb{Z}) \subseteq \mathbb{Z} \}.$$ 

Now $\text{Int}(\mathbb{Z})$, lying between $\mathbb{Z}[x]$ and $\mathbb{Q}[x]$, behaves like a polynomial ring over a field in some respects (interpolation, for instance, and Nullstellensatz properties), and like $\mathbb{Z}[x]$ in others (for instance, Krull dimension).

We show that, with respect to the stable rank, $\text{Int}(\mathbb{Z})$ behaves like $\mathbb{Q}[x]$, namely, $\text{s.r.}(\text{Int}(\mathbb{Z})) = 2$. (Received September 12, 2020)