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Pakawut Jiradilok*, Mathematics Department, Harvard University, 1 Oxford Street, Cambridge, MA 02138. *Reconstructing Partitions from their Multisets of k -Minors.*

For non-negative integers n and k with $n \geq k$, a k -minor of a partition $\lambda = [\lambda_1, \lambda_2, \dots]$ of n is a partition $\mu = [\mu_1, \mu_2, \dots]$ of $n - k$ such that $\mu_i \leq \lambda_i$ for all i . The multiset $\widehat{M}_k(\lambda)$ of k -minors of λ is defined as the multiset of k -minors μ with multiplicity of μ equal to the number of standard Young tableaux of skew shape λ/μ . We show that there exists a function $G(n)$ such that the partitions of n can be reconstructed from their multisets of k -minors if and only if $k \leq G(n)$. Furthermore, we prove that $\lim_{n \rightarrow \infty} G(n)/n = 1$ with $n - G(n) = O(n/\log n)$. For a minor μ of the partition λ , we study the excitation factor $E_\mu(\lambda)$ which appears as a crucial part in Naruse's Skew-Shape Hook Length Formula. We observe that certain excitation factors of λ can be expressed as a $\mathbb{Q}[k]$ -linear combination of the elementary symmetric polynomials of the hook lengths in the first row of λ where $k = \lambda_1$ is the number of cells in the first row of λ . (Received September 20, 2016)