1086-VO-1623   **James Lanterman*** (`jay.lanterman@gmail.com`) and **Jeremiah Reinkoester**. *Irreducible integers under the congruence modulo n relation.*

Building on the general theory of factorization posited by Anderson and Frazier in 2011, for an element a of an integral domain D under an equivalence relation τ, the factorization of a is defined as $\lambda a_1 a_2 a_3 ... a_k$, where λ is a unit in D and $a_i \tau a_j$ for all i, j. An irreducible element has no *proper* factorization; that is, a factorization in which there is more than one distinct non-unit factor. In this paper, the irreducible integers under the congruence modulo n relation are found for some values of n, and these findings are generalized in the first step toward a general characterization of the irreducible integers under this relation for any prime n. (Received September 23, 2012)