1056-13-896 **Jeremiah N. Reinkoester*** (`jreinkoe@math.uiowa.edu`), Department of Mathematics, 14 MacLean Hall, Iowa City, IA 52242. *Abstract Factorization into Relatively Prime Elements.* Preliminary report.

Let D be an integral domain. We define a $\tau_{[\,]}$-atom to be any nonzero, nonunit element a of D with no proper factorization $a = a_1 \cdots a_n$ such that $[a_i, a_j] = 1$ for $i \neq j$. We then define a $\tau_{[\,]}$-UFD to be an integral domain such that each nonzero, nonunit element a can be uniquely written, up to units, as a product of $\tau_{[\,]}$-atoms $a = a_1 \cdots a_n$ with $[a_i, a_j] = 1$ for $i \neq j$. We explore $\tau_{[\,]}$-UFD's with an emphasis on one-dimensional Noetherian domains and GCD domains. (Received September 18, 2009)

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