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Veronica Crispin Quiñonez* (veronica.crispin@math.uu.se), Department of Mathematics, P.O. Box 480, Uppsala University, 75106 Uppsala, Sweden. *The Ratliff-Rush operation on monomial ideals in three variables.*

Let R be a Noetherian ring and I a regular ideal. Then the ideals $(I^{l+1} : I^l)$ increase with l . In 1978 Ratliff and Rush showed that $\tilde{I} = \bigcup_{l \geq 1} (I^{l+1} : I^l)$ is the unique largest ideal with the same high powers as I . The union \tilde{I} is called the Ratliff-Rush ideal associated to I , and an ideal such that $\tilde{I} = I$ a Ratliff-Rush ideal.

Several results on the Ratliff-Rush operation are given in papers by W. Heinzer et al. (1992, 1993), and in a paper by M. E. Rossi and I. Swanson (2003) there are many examples with respect to other ideal operations. An algorithm for computing the Ratliff-Rush operation, that uses the Poincaré series and a tame superficial sequence, is given in by J. Elias (2004).

In 2006 we presented a rather simple algorithm using numerical semigroups for computing the Ratliff-Rush operation valid for any ideal generated by monomials of the same degree in a two-dimensional ring. This work was later generalized by I. Al-Ayyoub (2009) to other classes of monomial ideals in the same rings. Here we describe a generalization of the algorithm to three and more variables by means of positive affine semigroups. (Received February 05, 2015)