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Caleb J. Ashley* (caleb.ashley@morehouse.edu), Department of Mathematics, Morehouse College, 830 Westview Dr. S.W., Atlanta, GA 30314. *Gearing Up; Algorithms For Discreteness.*

Determining whether a given finitely generated group of isometries is discrete is a formidable problem. Furthermore discreteness occupies a central position in many venerable mathematical theories. Let Γ be a rank 2 non-elementary subgroup of $PSL(2, R)$; J. Gilman and B. Maskit developed a discreteness algorithm which codified all previously existing algorithms. I intend to share motivation, tools, and efforts for pursuing sufficient conditions for a discreteness algorithm for $\Gamma < PSL(2, R)$ of rank 3. A discreteness algorithm for Γ generated by 3 parabolic elements will be presented. (Received September 23, 2015)