ON A FAMILY OF A–HYPERGEOMETRIC SYSTEMS WITH EXPONENTIAL RANK JUMP

MARÍA-CRUZ FERNÁNDEZ-FERNÁNDEZ

ABSTRACT. The holonomic rank of an A–hypergeometric system $M_A(\beta)$ is known to be the normalized volume $\mathrm{vol}(A)$ of the matrix A when β is generic and for all the examples we found in the literature it is lower than $2\,\mathrm{vol}(A)$. We construct for all $d \geq 2$, matrices $A_{(d)} \in \mathbb{Z}^{d\times n}$ and parameters $\beta_{(d)} \in \mathbb{C}^d$, such that the ratio $\mathrm{rank}(M_{A_{(d)}}(\beta_{(d)}))/\,\mathrm{vol}(A_{(d)})$ is an exponential function on d.

Universidad de Sevilla, Departamento de Álgebra.
E-mail address: mcferfer@us.es