MR643282 (83e:14002) 14B05 13H10

Riemenschneider, Oswald

Zweidimensionale Quotientensingularitäten: Gleichungen und Syzygien. (German) [Two-dimensional quotient singularities: equations and syzygies]

Arch. Math. (Basel) **37** (1981), *no. 5,* 406–417.

Let $\mathcal{O}$ be the local ring of a 2-dimensional quotient singularity with embedding dimension e. Then $\mathcal{O}=\mathbf{C}[z_1,\cdots,z_e]/\mathfrak{a}$. The aim of the author is to determine a minimal set of generators of the ideal $\mathfrak{a}$. Except for some tetrahedral singularities with $e\geq 6$, it turns out that $\mathfrak{a}$ is almost determinantal in the following sense: The general form of a minimal set of generators may be given by $f_{ij}=a_i\cdot b_j-t_{i,j}\cdot b_i\cdot a_j$ with $t_{i,j}:=c_{i,i+1}\cdots c_{j-1,j}$. Hence the f_{ij} may be considered as generalized 2×2 minors of the matrix

$$\begin{pmatrix} a_1\cdots a_{e-1} \\ b_1\cdots b_{e-1}\end{pmatrix}$$

with a set of "deformation" elements $c_{1,2},\cdots,c_{e-2,e-1}$. For the exceptional cases, the ideal $\mathfrak{a}$ can be generated by the 2×2 minors of an array

$$\begin{array}{|ccc|} a_1 & \cdots & a_{e-1} \\ b_1 & \cdots & b_{e-1} \\ c_1 & c_2 & \end{array}$$

However, it should be noted that not all of the minors are independent. Still, it is always possible to split off two of them to get a minimal set of generators. *Ulrich Karras*