Laudal, Olav Arnfinn; **Martin, Bernd**; **Pfister, Gerhard**

Moduli of irreducible plane curve singularities with the semigroup $< a, b >$. (English)

Zbl 0617.14021
Algebraic geometry, Proc. Conf., Berlin 1985, Teubner-Texte Math. 92, 236-258 (1986).

[For the entire collection see Zbl 0607.00004.]

The authors construct and study the moduli space of irreducible plane curve singularities with the semigroup $< a, b >$ (where a and b are positive relatively prime integers) and with minimal Tjurina number. More precisely, let $(X_0, 0)$ be the analytic germ in $(\mathbb{C}^2, 0)$ given by $X^a + Y^b = 0$. Let $X \to H$ be a good representative of the versal μ-constant deformation (where μ is the Milnor number of $(X_0, 0)$). It turns out that H can be chosen to be $\mathbb{C}^n$ for some n, and X a hypersurface in $H \times \mathbb{C}^2$. Then the moduli space is obtained as the quotient of H by $G = \exp(V)$, where V is the kernel of the Kodaira-Spencer map. A good quotient space exists only if one fixes the Tjurina number. A special attention is payed to the quotient space corresponding to the minimal Tjurina number, in which case it is a geometric quotient in the sense of Mumford, and moreover, one shows that it is quasi-smooth and one computes its dimension explicitly.

Reviewer: L.Bădescu

MSC:

14H10 Families, moduli of curves (algebraic)
14H20 Singularities of curves, local rings
14B05 Singularities in algebraic geometry

Keywords:

moduli space of irreducible plane curve singularities; minimal Tjurina number; Milnor number; Kodaira-Spencer map