Consider the Pham polynomial \( x_1^{k_1} + \ldots + x_n^{k_n} \) and its deformation \( f(x) = x_1^{k_1} + \ldots + x_n^{k_n} + \sum_{|m| < 1} \lambda_m x_1^{m_1} \ldots x_n^{m_n}, \)
where \(|(m_1, \ldots, m_n)| = m_1/k_1 + \ldots + m_n/k_n\) and \(\lambda_m \in \mathbb{C}.\)

\( X = \{ x \in \mathbb{C}^n \mid f(x) = 0 \} \) has the homotopy type of a bouquet of \( \mu \) \((n-1)\)-dimensional spheres, where \( \mu = (k_1 - 1) \ldots (k_n - 1). \)

Consider the canonical base \( \delta_1, \ldots, \delta_\mu \in H_{n-1}(X, \mathbb{Z}) \) and the base for the cohomology given by the forms \( \omega_I/df, \) where \( \omega_I = x_1^{i_1} \ldots x_n^{i_n} dx_1 \wedge \ldots \wedge dx_n, \ 0 \leq i_j \leq k_j - 2. \)

The main result is a formula expressing \( \det(\int_{\delta_j} \omega_I/df) \) as \((n/2-1)\)-power of the product of the critical values of \( f, \) modulo the multiplication with a well determined constant. One asks for a similar formula when starting with an arbitrary quasi-homogeneous polynomial.

Other related results are also given, as part of a general principle; express the determinant of the matrix of periods in terms of the critical values of the equations defining the variety.

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**MSC:**
- 32S20 Global theory of complex singularities; cohomological properties
- 32G20 Period matrices, variation of Hodge structure; degenerations
- 58C25 Differentiable maps on manifolds
- 58K99 Theory of singularities and catastrophe theory

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