Multivalued forms in $\mathbb{P}^1_{\mathbb{C}}$ and cohomology with local coefficients

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Let $\mathbb{P}^1_{\mathbb{C}}$ be the complex projective line and let $S$ be a set of $N > 0$ points in $\mathbb{P}^1_{\mathbb{C}}$. Given $\alpha_s, s \in S$ a family of complex numbers indexed by $S$ satisfying the condition $\prod \alpha_s = 1$. This data defines a unique complex local system $L$ with monodromies $\alpha_s$ in $\mathbb{P}^1_{\mathbb{C}} \setminus S$. The goal of this session is to understand when a multivalued differential form on $\mathbb{P}^1_{\mathbb{C}} \setminus S$ defines a non-zero cohomology class in $H^1(\mathbb{P}^1_{\mathbb{C}} \setminus S, L)$. The main reference will be [1].

References