

On the Abel-Radon transform of locally residual currents

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Abstract : We study the Abel-Radon transform R with respect to a family of complete intersections of a fixed multidegree (d_1, \dots, d_n) in P^N . Let U be an open set on the parameter space T , and $U^* = \cup_{t \in U} H_t$, and α a locally residual current of bidegree (N, p) , $p = N - n$. Then if $R(\alpha)$ extends holomorphically to a greater domain $\tilde{U} \subset T$, then α extends in a unique way as a locally residual current to \tilde{U}^* . We give for this a "trace lemma" of the type : Let $q : D \times \mathbb{C}^p \rightarrow D$, the standard projection, $D \subset \mathbb{C}^n$, and β a proper locally residual current of bidegree (N, p) on $D \times \mathbb{C}^p$. If $u_{i_1 \dots i_p} := q_*(\beta y_1^{i_1} \dots y_p^{i_p})$ extend holomorphically to \tilde{D} , for a finite number of multi-indices $I = (i_1, \dots, i_p)$, then β extend in a unique way as a proper locally residual current of bidegree (N, p) to $\tilde{D} \times \mathbb{C}^p$.