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Pull-back of currents by meromorphic maps

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Let X and Y be compact K\"ahler manifolds, and let $f:X\rightarrow Y$ be a dominant meromorphic map. Base upon a regularization theorem of Dinh and Sibony for DSH currents, we define a pullback operator $f^{\sharp}$ for currents of bidegrees (p,p) of finite order on Y (and thus for {\it any} current, since Y is compact). This operator has good properties as may be expected.

Our definition and results are compatible to those of various previous works of Meo, Russakovskii and Shiffman, Alessandrini and Bassanelli, Dinh and Sibony, and can be readily extended to the case of meromorphic correspondences.

We give an example of a meromorphic map f and two nonzero positive closed currents T_1,T_2 for which $f^{\sharp}(T_1)=-T_2$. We use Siu's decomposition to help further study on pulling back positive closed currents. Many applications on finding invariant currents are given.

Comments:	31 pages. Largely revised. Many applications and examples added. New abstract
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