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**Vixie.** *Flat norm decomposition of integral currents.*

Currents (dual to differential forms) can be thought of as oriented generalized surfaces. The flat norm provides a useful distance in this space based on decomposing  $d$ -currents into  $d$ -dimensional pieces and (boundaries of)  $(d + 1)$ -dimensional pieces in an optimal way. One question is whether regularity in the input current implies regularity of the decomposition. In particular, do integral currents necessarily have integral decompositions? This is known for boundaries of codimension 1 and recently in a discretized problem for codimension 1 chains (which need not be boundaries). This work presents a framework that bridges the gap between the continuous and discrete settings, relying only on the existence of a triangulation quality result which is explicitly shown for 1-currents in the plane based on a result of Shewchuk. (Received September 16, 2014)