

1116-53-1376

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Vixie. *Flat norm decomposition of integral currents.*

The flat norm provides an important distance in the space of generalized surfaces (integral currents) by decomposing d -dimensional integral currents into d -dimensional pieces and (boundaries of) $(d + 1)$ -dimensional pieces in an optimal way. When these optimal pieces are also integral currents, the decomposition is easier to work with theoretically and has a clear physical meaning in applications. This is not always possible: some integral 1-currents in 4-dimensional space, for example, have no integral optimal decompositions. Integral decompositions are known to exist for codimension 1 integral currents with empty boundaries. For the case of 1-currents, we remove this boundary requirement with appeal to a discretized problem and triangulation mesh quality results. For higher dimensions, we present a framework which (assuming a reasonable triangulation conjecture) implies the result and comment on possible approaches to resolve it. (Received September 19, 2015)