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Tushar Das* (tdas@uwlax.edu). *Singular systems of linear forms and divergent trajectories on homogeneous spaces.*

We establish a new connection between metric Diophantine approximation and the parametric geometry of numbers by proving a variational principle that computes the Hausdorff and packing dimensions of a variety of sets of interest in Diophantine approximation and their analogues in the setting of homogenous dynamics on the space of unimodular lattices. These results are part of ongoing joint work with Lior Fishman (NorthTexas), David Simmons (York) and Mariusz Urbański (North Texas). (Received July 11, 2017)