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*Metric Diophantine approximation on manifolds*

In the area of metric Diophantine approximation, there has been undergoing some fascinating interplays between number theory, dynamic system and harmonic analysis. The subject was initiated by Khinchine and Jarnik who establish respectively the Lebesgue and Hausdorff theories for simultaneous Diophantine approximation on Euclidean spaces. A fundamental question was subsequently raised by Baker and Sprindzuk that whether points on a generic manifolds satisfy the same Diophantine property which asserts that almost all or almost no points on the manifolds can be approximated well by rational points according as whether a certain volume sum diverges or converges. Some tremendous progress have been made towards the full solution of this conjecture by Kleinbock-Margulis, Beresnevich, Vaughan-Velani etc in the last 15 years. In this talk, I will survey these progress and present some very recent development made by the author.