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Yunping Jiang* (yunping.jiang@qc.cuny.edu), Department of Mathematics, 65-30 Kissena Blvd, Flushing, NY 11367. *Orders of Oscillation Motivated By Sarnak's Conjecture.*

In view of Sarnak's conjecture in number theory, I will define orders of oscillating sequences and mention the important role of them playing in number theory in this talk. For oscillating sequences (of order 1), we have proved that they are linearly disjoint from all MMA and MMLA flows. For oscillating sequences of order $d \geq 2$, I have proved that they are linearly disjoint from all affine distal flows as well as all nonlinear affine distal flows with Diophantine translations on the d -torus. We will present a detail explanation about how to use this result to study the linear disjointness of affine flows with zero topological entropy as well as associated nonlinear flows with Diophantine translations on the d -torus and oscillating sequences of order d in the arithmetic sense. One of the consequences is that Sarnak's conjecture holds for all the flows discussed in this talk. (Received September 11, 2019)