

NTU Math Seminar

演講者 : Asad Lodhia (University of Michigan, Ann Arbor NSF RTG Postdoctoral Fellow)

講題 : Harmonic Means of Wishart Matrices and their Statistical Applications

時間 : 2020年2月25日 (星期二) 10:00 - 11:00 a.m.

地點 : 臺灣大學天數館 440 室

摘要 : The structure of the space of positive definite matrices admits a great deal of choices of matrix means. We analyzed the effect of computing a different mean, namely the harmonic mean, of a sequence of Wishart matrices to analyze the high-dimensional structure of the positive definite cone with the use of free probability theory. In so doing, we found conditions in which computing the harmonic mean results in a better estimate in operator norm of the expectation than the arithmetic mean. The Wishart distribution is a fundamental object in multivariate statistics as a model of the covariance of normally distributed random vectors, as such, improvements in norm estimation is a topic of fundamental importance. We explored the impact of our operator norm improvement in the context of statistics and found an interpretation in terms of data splitting. We further investigate the consequences of operator norm estimation in eigenvector recovery problems and compare it to commonly held notions in the statistics community. This talk is based on joint work with Keith Levin and Elizaveta Levina both of whom are based in the University of Michigan.

茶會 : 11:00-12:00

相關事宜請與顏湘伶小姐聯絡 Tel:(02)3366-2822 歡迎上網查詢 網址 : <http://www.math.ntu.edu.tw>