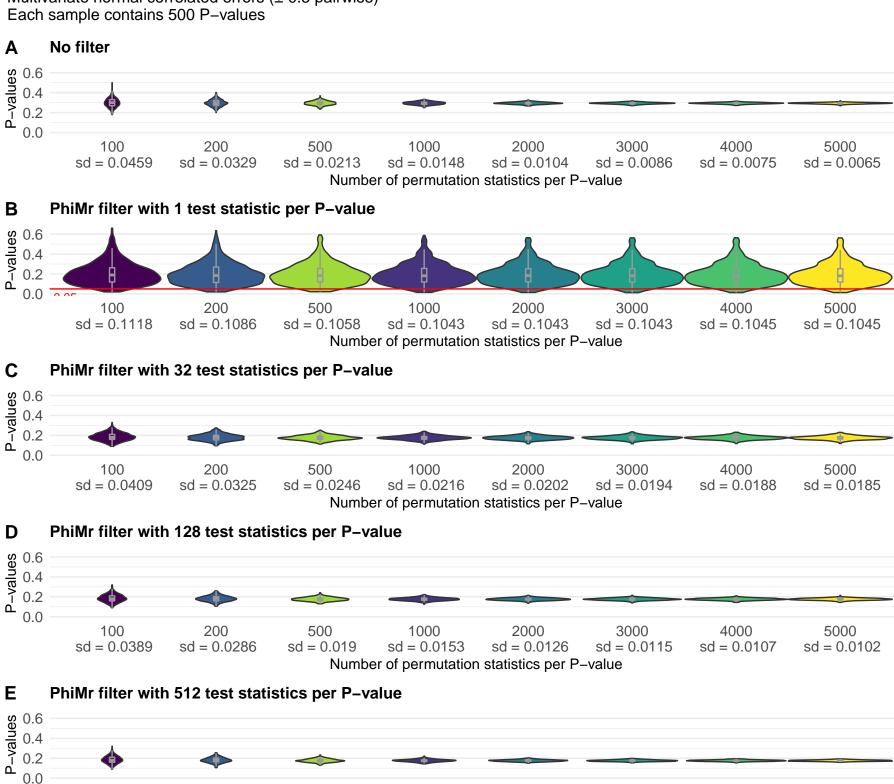# Distribution of AMKAT P−value on a Fixed Data Set

Discrete (SNP) features, 28−variable signal at 100% strength, p = 100, n = 30
Multivariate normal correlated errors (± 0.5 pairwise)
Each sample contains 500 P−values

A **No filter**

100	200	500	1000	2000	3000	4000	5000
sd = 0.0459	sd = 0.0329	sd = 0.0213	sd = 0.0148	sd = 0.0104	sd = 0.0086	sd = 0.0075	sd = 0.0065

Number of permutation statistics per P−value

B **PhiMr filter with 1 test statistic per P−value**

100	200	500	1000	2000	3000	4000	5000
sd = 0.1118	sd = 0.1086	sd = 0.1058	sd = 0.1043	sd = 0.1043	sd = 0.1043	sd = 0.1045	sd = 0.1045

Number of permutation statistics per P−value

C **PhiMr filter with 32 test statistics per P−value**

100	200	500	1000	2000	3000	4000	5000
sd = 0.0409	sd = 0.0325	sd = 0.0246	sd = 0.0216	sd = 0.0202	sd = 0.0194	sd = 0.0188	sd = 0.0185

Number of permutation statistics per P−value

D **PhiMr filter with 128 test statistics per P−value**

100	200	500	1000	2000	3000	4000	5000
sd = 0.0389	sd = 0.0286	sd = 0.019	sd = 0.0153	sd = 0.0126	sd = 0.0115	sd = 0.0107	sd = 0.0102

Number of permutation statistics per P−value

E **PhiMr filter with 512 test statistics per P−value**

100	200	500	1000	2000	3000	4000	5000
sd = 0.0372	sd = 0.027	sd = 0.0171	sd = 0.0128	sd = 0.0095	sd = 0.008	sd = 0.0073	sd = 0.0066

Number of permutation statistics per P−value