n_d	3	4	5	10	100	200	300
Quater.	6.76×10^{-5}	7.45×10^{-5}	7.79×10^{-5}	1.14×10^{-4}	1.01×10^{-3}	1.75×10^{-3}	2.14×10^{-3}
Matrix	1.03×10^{-4}	1.11×10^{-4}	1.14×10^{-4}	1.53×10^{-4}	1.06×10^{-3}	1.82×10^{-3}	2.22×10^{-3}
t_q/t_m	0.66	0.67	0.68	0.75	0.95	0.96	0.96

Table 1: Pratical improvement ratio of QuaternionBP in relation to MatrixBP considering the geometric means of benchmark times over all instances with fixed n_d.

n_d	400	500	600	700	800	900	1000
Quater.	2.34×10^{-3}	2.45×10^{-3}	2.54×10^{-3}	2.61×10^{-3}	2.69×10^{-3}	2.72×10^{-3}	2.69×10^{-3}
Matrix	2.43×10^{-3}	2.54×10^{-3}	2.63×10^{-3}	2.70×10^{-3}	2.80×10^{-3}	2.82×10^{-3}	2.79×10^{-3}
t_q/t_m	0.96	0.96	0.96	0.97	0.96	0.96	0.96

Table 2: Pratical improvement ratio of QuaternionBP in relation to MatrixBP considering the geometric means of benchmark times over all instances with fixed n_d.