

$n_d$	3	4	5	10	100	200	300
Classic	$2.06 \times 10^{-4}$	$2.74 \times 10^{-4}$	$2.84 \times 10^{-4}$	$3.59 \times 10^{-4}$	$1.19 \times 10^{-3}$	$2.20 \times 10^{-3}$	$2.76 \times 10^{-3}$
Quater.	$1.09 \times 10^{-4}$	$1.57 \times 10^{-4}$	$1.64 \times 10^{-4}$	$2.31 \times 10^{-4}$	$1.03 \times 10^{-3}$	$1.96 \times 10^{-3}$	$2.49 \times 10^{-3}$
Improv	88.39%	74.58%	72.73%	55.44%	15.78%	12.05%	10.90%

$n_d$	400	500	600	700	800	900	1000
Classic	$3.41 \times 10^{-3}$	$3.46 \times 10^{-3}$	$3.19 \times 10^{-3}$	$3.15 \times 10^{-3}$	$3.08 \times 10^{-3}$	$3.30 \times 10^{-3}$	$3.14 \times 10^{-3}$
Quater.	$3.05 \times 10^{-3}$	$3.11 \times 10^{-3}$	$2.85 \times 10^{-3}$	$2.82 \times 10^{-3}$	$2.76 \times 10^{-3}$	$2.94 \times 10^{-3}$	$2.80 \times 10^{-3}$
Improv	11.74%	11.55%	11.64%	11.76%	11.36%	12.23%	12.34%

Table 1: Improvement percentage in geometric means of **QuaternionBP** in relation to **MatrixcBP** considering results of the benchmark.