

Light Quark Action	Integrator	Light Hasenbusch Masses	$\Delta t$	$r_{\text{MD}}$	$N_{\text{traj}}$	Acceptance	Efficiency
RHMC	Omelyan	0.007	0.0625	$10^{-8}$	850	88%	—
EOFA	FG	0.0058, 0.0149, 0.059, 0.177, 0.45	0.1667	$10^{-7}$	850	93%	<b>4.2</b>

**Table:** Fully tuned RHMC and EOFA schemes.  $\Delta t$  is the outermost time step,  $r_{\text{MD}}$  is the MD CG tolerance, and **efficiency** is the speed-up in the total job time relative to the RHMC scheme.

### RHMC

- Omelyan integrator ( $\lambda = 0.22$ )
- One light quark Hasenbusch mass
- Multishift CG with single precision  $\mathbb{D}$  but accumulating solution and search vectors in double precision, coupled with reliable update to correct residual
- Even-odd preconditioning

### EOFA

- Force gradient integrator
- Five light quark Hasenbusch masses
- Mixed precision defect correction CG
- Even-odd preconditioning
- Cayley preconditioning
- Force gradient forecasting
- Heatbath forecasting
- Heatbath CG tolerance tuning

**Figure:** Comparison of RHMC and EOFA integration schemes.