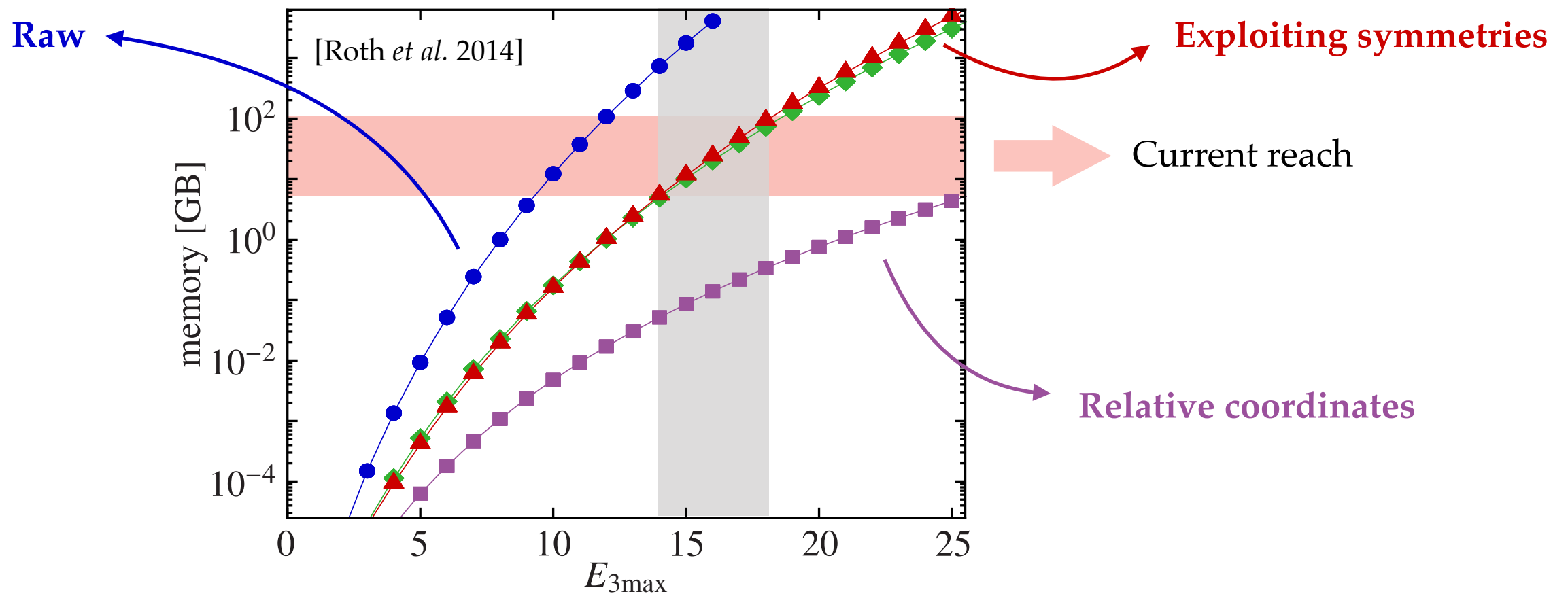


Handling matrix elements of 3N interactions

⊙ Matrix elements of (2N & 3N) nuclear interactions must be stored & read by computer codes



⊙ How to **reduce the size of 3N matrix elements**, hence the storage and computational costs?

→ 3N matrix elements seen as multi-dimensional arrays (or high-order tensors)

→ Techniques from applied mathematics can be explored (objective: **compress the information**)

⊙ Two-body forces can be factorised as $v_{ijkl} = \sum_a \lambda_a g_{ik}^a g_{jl}^a$ (→ Singular Value Decomposition)

→ **Idea: factorise & keep only the most important factors (i.e., truncate the sum)**

→ Generalisation to 3N under investigation