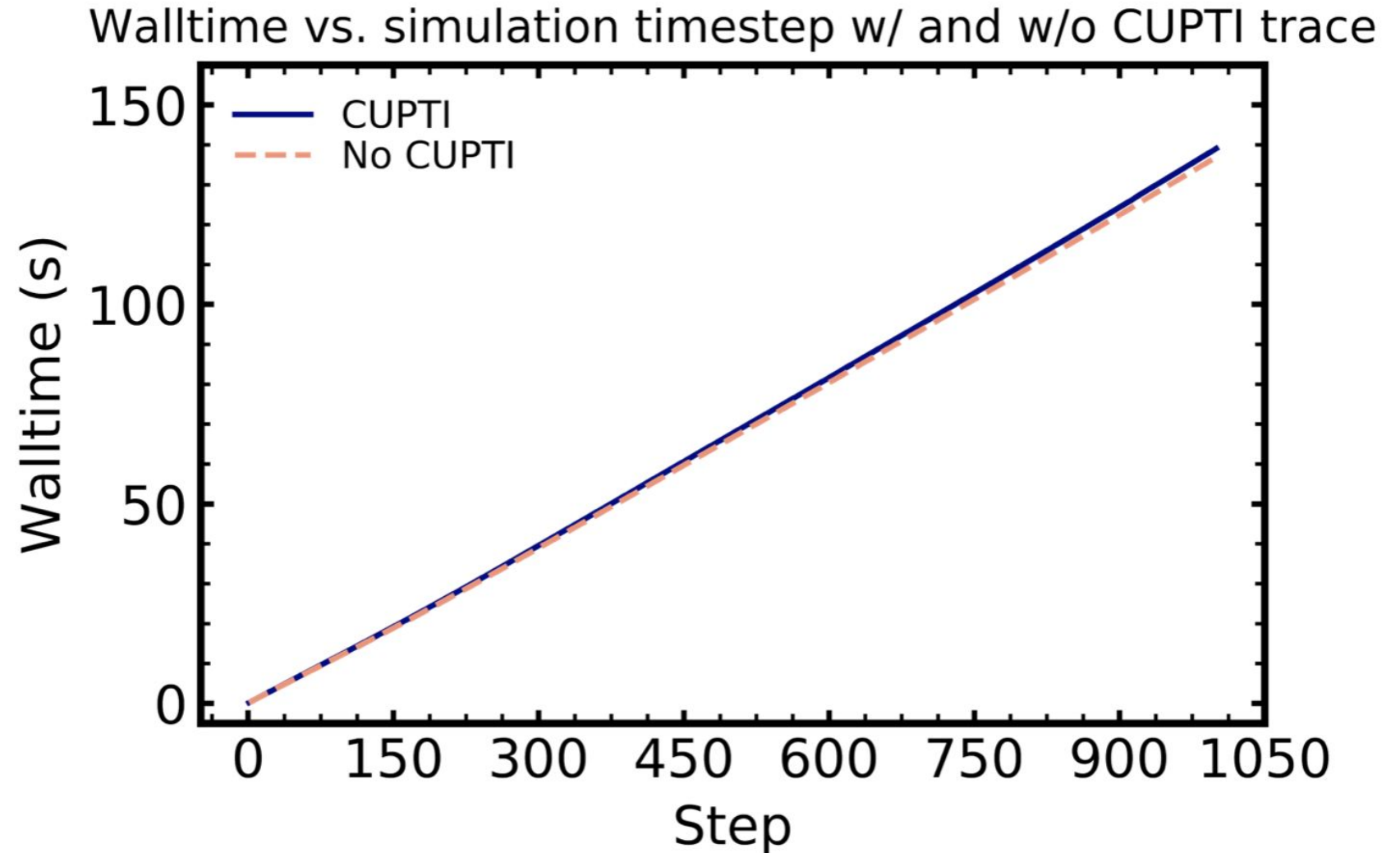


# Overhead incurred with CUPTI timers is small

- Comparison of walltime for WarpX simulation with CUPTI initialized (dark blue) and without CUPTI (light red)
- Agreement between red and blue demonstrates that there is only a small overhead when using CUPTI



# Conclusion

- Developed a technique (CUPTI Callback timing) for real-time GPU kernel profiling
- Implemented in AMReX
- Impact:
  - Provides accurate kernel timing **in real time**
  - Enables correct **load balancing** in WarpX
- Future work:
  - Load balancing in ion acceleration problem

