

Need advanced methods!

Experiments suggest rate $\sim 1/\text{ms}$

MDtimestep: ~ 1 fs

One event requires 10^{12} steps!

We simulate about 50ns per (real) day

One event every 50 years of computer time

.
and we need ~1000 events for statistics

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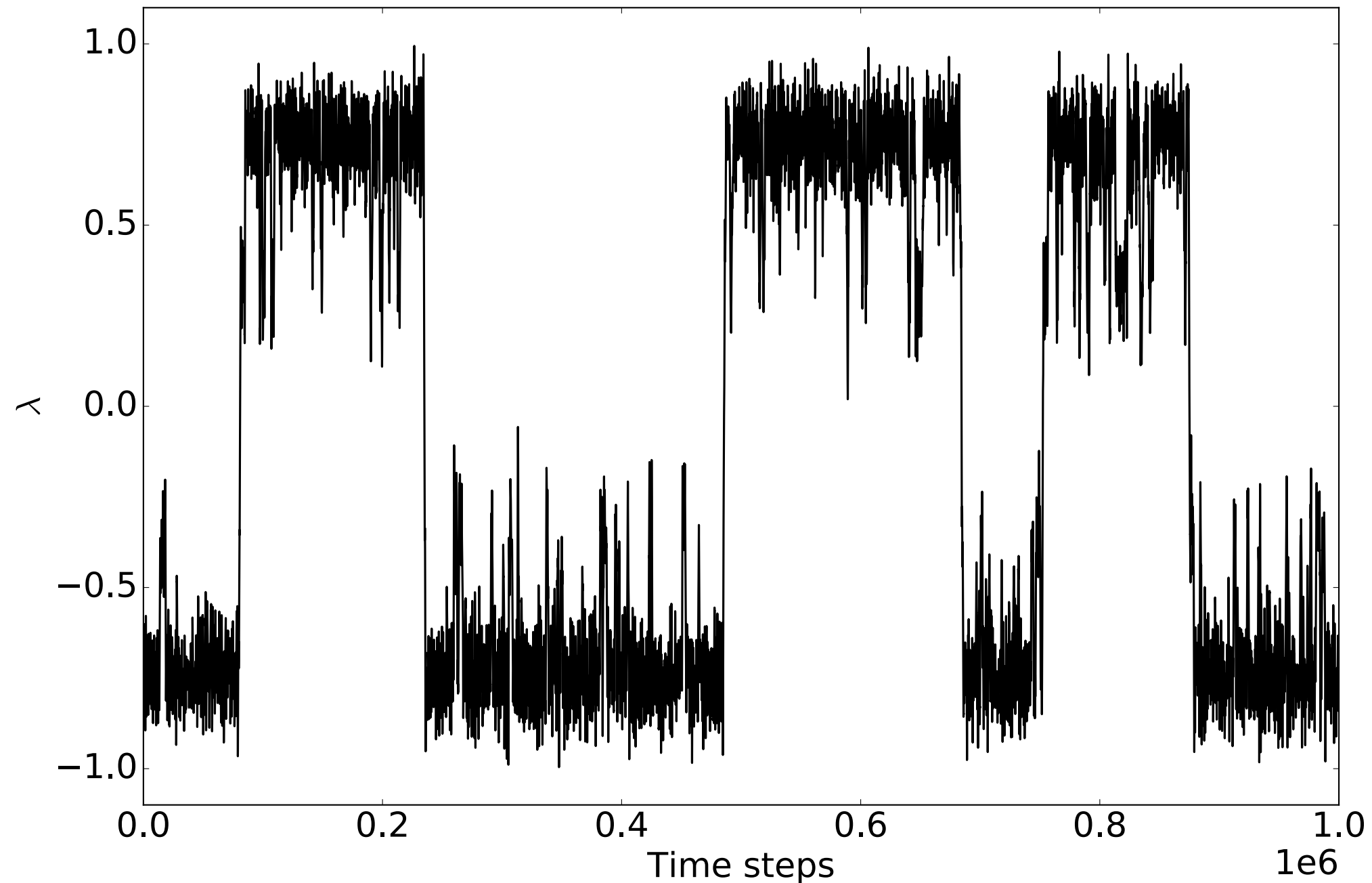
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Separation of time scales:
fundamental time scale vs. frequency of event