WrightSim

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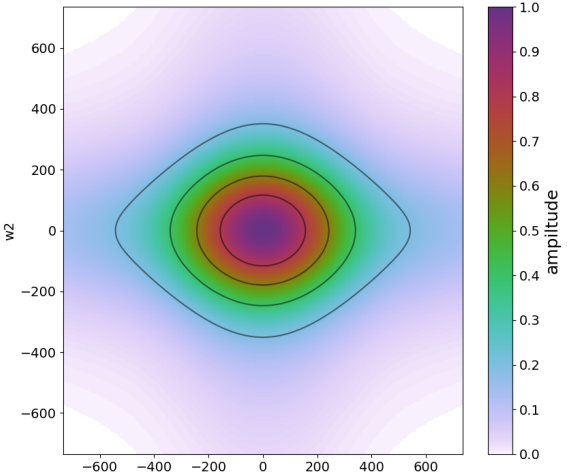
Goals

Sample Spectrum



Introduction

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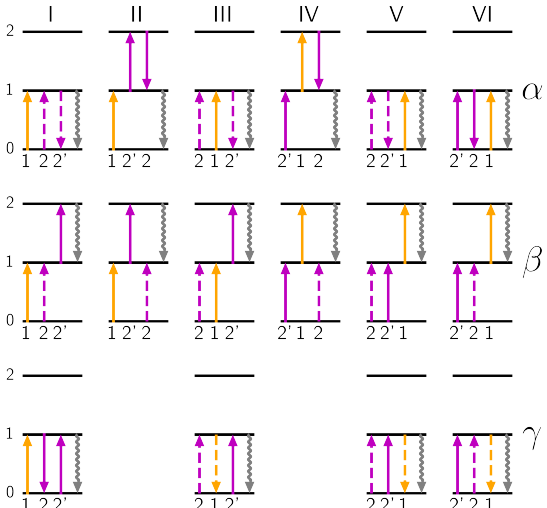
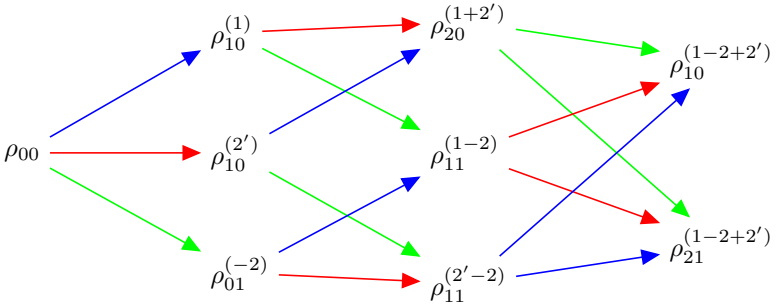
Pathways



Finite state automaton



$$\overline{\rho} \equiv \begin{bmatrix} \tilde{\rho}_{00} \\ \tilde{\rho}_{01}^{-2} \\ \tilde{\rho}_{10}^{2'} \\ \tilde{\rho}_{10}^{1} \\ \tilde{\rho}_{20}^{1+2'} \\ \tilde{\rho}_{11}^{1-2} \\ \tilde{\rho}_{11}^{2'-2} \\ \tilde{\rho}_{10}^{1-2+2'} \\ \tilde{\rho}_{21}^{1-2+2'} \end{bmatrix}$$

Hamiltonian Matrix

$$\overline{\overline{Q}} \equiv \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -A_2 & -\Gamma_{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ A_{2'} & 0 & -\Gamma_{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ A_1 & 0 & 0 & -\Gamma_{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & B_1 & B_{2'} & -\Gamma_{20} & 0 & 0 & 0 & 0 \\ 0 & A_1 & 0 & -A_2 & 0 & -\Gamma_{11} & 0 & 0 & 0 \\ 0 & A_{2'} & -A_2 & 0 & 0 & 0 & -\Gamma_{11} & 0 & 0 \\ 0 & 0 & 0 & 0 & B_2 & -2A_{2'} & -2A_1 & -\Gamma_{10} & 0 \\ 0 & 0 & 0 & 0 & -A_2 & B_{2'} & B_1 & 0 & -\Gamma_{21} \end{bmatrix}$$

NISE

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Algorithmic Improvements

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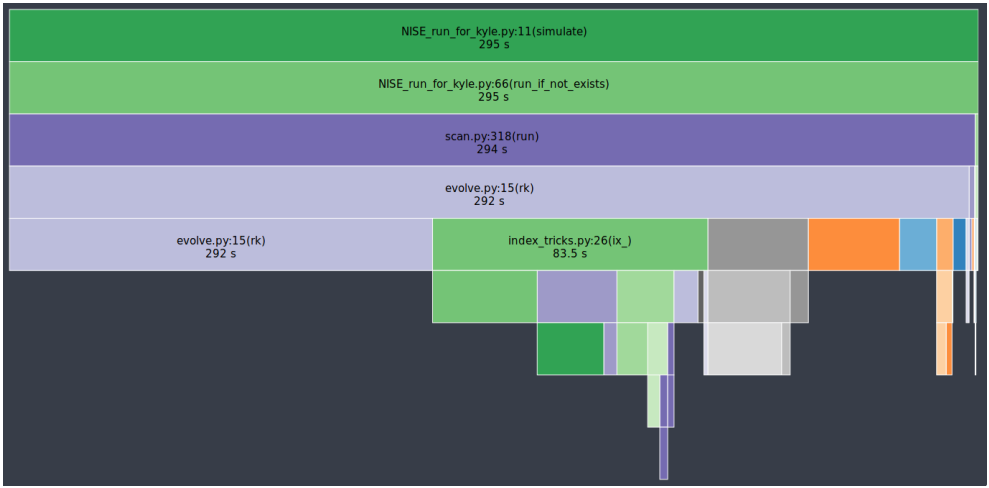
Profile trace of NISE



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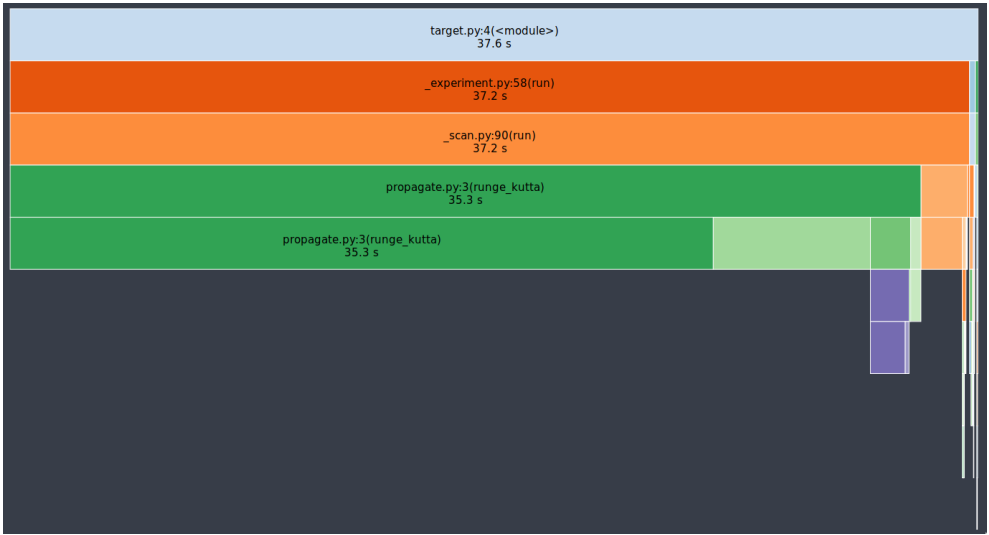
Profile trace of `WrightSim`



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Parallel Implementations

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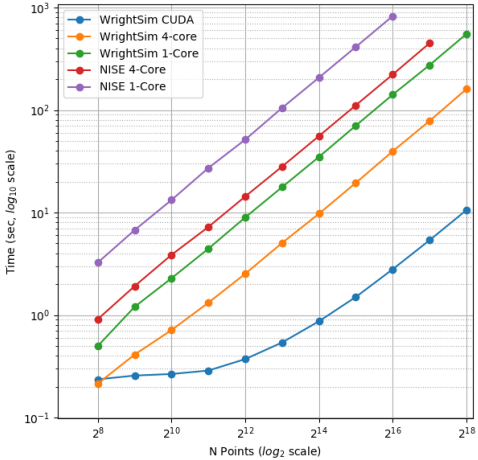
Scaling Analysis



Limitations

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