Annotated Bibliography for

Computational Foundations for the Second Law of Thermodynamics

Stephen Wolfram

For an extensive discussion of the history of the Second Law, see:

S. Wolfram (2023), "How Did We Get Here? The Tangled History of the Second Law of Thermodynamics". writings.stephenwolfram.com/2023/01/how-did-we-get-here-the-tangled-history-of-the-second-law-of-thermodynamics.

For a discussion of the personal and other background history of this work, see:

S. Wolfram (2023), "A 50-Year Quest: My Personal Journey with the Second Law of Thermodynamics". writings.stephenwolfram.com/2023/02/a-50-year-quest-my-personal-journey-with-the-second-law-of-thermodynamics.

Pointers to specific references are included as hyperlinks in the online version of this piece.

Development of the Approach Described Here

The concept of computational irreducibility was described in:

S. Wolfram (1985), "Undecidability and Intractability in Theoretical Physics", *Physical Review Letters* 54, 735–738. content.wolfram.com/undecidability-intractability-theoretical-physics.pdf.

An early description of the computational character of the Second Law was given in:

S. Wolfram (1985), "Origins of Randomness in Physical Systems", *Physical Review Letters* 55, 449–452. content.wolfram.com/origins-randomness-physical-systems.pdf.

Further development was done in:

S. Wolfram (2002), "Irreversibility and the Second Law of Thermodynamics", in *A New Kind of Science*, Wolfram Media, 441–457. wolframscience.com/nks/chap-9--fundamental-physics/#sect-9-3--irreversibility-and-the-second-law-of-thermodynamics.

The Wolfram Physics Project is described in:

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The "particle cellular automaton" used here was introduced in:

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