

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9910453407103321 |
| Autore | Schmitz John E. J |
| Titolo | The second law of life [[electronic resource]] : energy, technology, and the future of Earth as we know it // John E.J. Schmitz |
| Pubbl/distr/stampa | Norwich, NY, : William Andrew Pub., c2007 |
| ISBN | 1-282-02765-4 9786612027659 0-8155-1930-3 |
| Edizione | [121999th ed.] |
| Descrizione fisica | 1 online resource (229 p.) |
| Disciplina | 536/.73 |
| Soggetti | Entropy Thermodynamics Electronic books. |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references (p. 199-203) and index. |
| Nota di contenuto | Front Cover; The Second Law of Life: Energy, Technology, and the Future of Earth As We Know It; Copyright Page; Contents; Foreword; Preface; PART I The Birth of a Beautiful Theory: Thermodynamics; Chapter 1 So What Is All This Talk About Entropy?; A few simple questions; A look at our travel itinerary; Chapter 2 The Science of Heat and Work: Classical Thermodynamics; Historical context; How easy is it to go back?; Heat, energy, and mechanical work; Entropy and the Second Law of Thermodynamics; Perpetual motion and engines; Entropy and the direction of time; Let's take a break Chapter 3 Much More About EntropyDo we really understand what entropy is all about?; History of the acceptance of the existence of the atoms in physics; Statistical Thermodynamics: macroscopic and microscopic views; Entropy and the direction of time: reprise; Point of zero entropy and of zero absolute temperature; Boltzmann's struggle with the scientific community; Energy efficiency and some conclusions; Chapter 4 Link of Thermodynamics to Modern Physics; Three men and thermodynamics; Why couldn't Newton's mechanics explain everything?; Thermodynamics at the birth of modern physics The interpretation of time and its directionThe influence of modern |

physics on thermodynamics: does relativity change entropy?; PART II Entropy and Our Society, Our Culture, Our Planet, and Our Universe; Chapter 5 Entropy, the Economic Process, and the World's Environmental Problems; General environmental trends; How entropy plays a role in the economic process and re-defines concepts such as efficiency and sustainability; A plea for a redefinition of efficiency and sustainability; Chapter 6 Energy, Entropy, Life, and Heat Death The contradiction between the thermodynamic push for chaos and the tremendous degree of molecular and biological organization Entropy and the food chain; Heat Death; Chapter 7 The Use of the Concept of Entropy in Other Sciences; Entropy and electrical communication; Maxwell's demon; Use of the concept of entropy in other nonscientific fields; Epilogue; Appendix I Two More Laws of Thermodynamics?; Appendix II Another Way of Looking at Entropy; Appendix III How Does the Gas Heat Up in the Air Pump?; Appendix IV Will Reshuffling a Deck of Cards Change the Entropy? Appendix V How Much Does the Entropy Change in a Case of Gas Expansion and Gas Mixing? Appendix VI Thermodynamic Timeline; Appendix VII Can the Human Body Be Considered a Heat Engine?; Appendix VIII Ways to Concentrate Energy: Nuclear Energy, Photovoltaic Cells, and Fuel Cells; Appendix IX Qualitative Definitions and Descriptions of Entropy; Appendix X Some Simple Calculations and Interesting Numbers; References; Index

Sommario/riassunto

In this compelling, and important book, John Schmitz brings order to the world of chaos that surrounds us. The Second Law of Life refers to the second law of thermodynamics, entropy, which is an omnipresent force that quietly and crucially determines every aspect of our society, culture and daily lives. Unless we come to understand entropy, future generations will face consequences of the unstoppable laws of physics. Entropy explains the amount of energy no longer capable of doing work; in other words, wasted energy or heat loss. Each moment of every day, we lose irreplaceable energy an
