

Book Presentation

The Computational Structure of Life Cycle Assessment

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Publisher: Kluwer Academic Publishers, Dordrecht, Boston, London, 2002. ISBN: 1-4020-0672-1;

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Life cycle assessment (LCA) is a tool for environmental decision-support in relation to products from cradle to grave. Until now, more emphasis has been put on the inclusion of quantitative models and databases, and on the design of guidebooks for applying LCA, than on the integrative aspect of combining these models and data. This is a remarkable issue, since LCA in practice deals with thousands of quantitative data items that have to be combined in the correct manner. For this purpose, mathematical rules and algorithmic principles are needed.

This book presents the first coherent treatment of the mathematical and algorithmic aspects of LCA. These computational aspects are presented in matrix form, so that a concise and elegant formulation is achieved.

This form, moreover, provides a platform for further extension of analysis using perturbation theory, structural theory, and economic input-output analysis.

¹ Publications by Reinout Heijungs in Int J LCA:

Int J LCA 6 (3) 141–148 (2001): Numerical Approaches Towards Life Cycle Interpretation

Int J LCA 4 (1) 2–3 (1999): Comment: The Structure of Impact Assessment: Mutually Independent Dimensions as a Function of Modifiers

Int J LCA 3 (5) 266–272 (1998): Einstein's Lessons for Energy Accounting in LCA

Int J LCA 3 (6) 321–332 (1998): A Special View on the Nature of the Allocation Problem

Int J LCA 1 (3) 133–138 (1996): USES – Uniform System for the Evaluation of Substances

Int J LCA 1 (4) 237–240 (1996): Modelling Fate for LCA

² Publications by Sangwon Suh in Int J LCA:

Int J LCA 7 (3) 134–140 (2002): Missing Inventory Estimation Tool Using Extended Input-Output Analysis

Book Announcement

Industrial Ecology, 2/E

Authors: Thomas E. Graedel¹, Yale University, Braden R. Allenby, AT&T

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Format: Cloth; 384 pp; US: \$62.00; You Save: \$6.20 (10% off); **Our Price: \$55.80**

Description: For upper level courses in Industrial Ecology

This text addresses the increasing need for knowledge about the interactions between industry and environment with the ultimate goal of sustainability. With in-depth analysis of past, present, and future issues in industrial ecology, this book seeks to meet the needs of the product-design engineers who hold much of the future of industry-environment interactions in their hands, as well as the emerging discipline of 'sustainability scientists'.

Contents:

1. Humanity and Environment
2. The Industrial Ecology Concept
3. Technological Change and Evolving Risk
4. The Relevance of Biological Ecology to Technology
5. The Status of Resources

6. Society and Culture

7. Governments, Laws, and Economics

8. Industrial Product Design and Development

9. Industrial Process Design and Operation

10. Choosing Materials

11. Designing for Energy Efficiency

12. Product Delivery

13. Environmental Interactions During Product Use

14. Design For End of Life

15. An Introduction to Life-Cycle Assessment

16. The LCA Impact and Interpretation Stages

17. Streamlining the LCA Process

18. Using the Corporate Industrial Ecology Toolbox

19. Managing Industrial Ecology in the Corporation

20. Indicators and Metrics

21. Services, Technology, and Environment

22. Industrial Ecosystems

23. Metabolic and Resource Analysis

24. Systems Analysis, Models, and Scenario Development

25. Earth Systems Engineering and Management

26. The Future of Industrial Ecology

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