

IS SMALL GREEN? LIFE CYCLE ASPECTS OF TECHNOLOGY TRENDS IN MICROELECTRONICS AND MICROSYSTEMS

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Abstract - The technology development in the field of microelectronics and micro integration is the backbone of the highly innovative information and communication technology, creating products with steadily increasing functionality and completely new applications for electronics. This paper exemplifies future trends in electronics, especially ubiquitous electronics, grain-size components and merging of electronics with textiles and packagings. The paper discusses the environmental life cycle aspects of the related technology development. Life cycle management has to provide appropriate measures to guide this development. Research for advanced electronics specifically has to consider environmental aspects but faces certain constraints, which will be discussed. However, life cycle management for technology R&D faces weak databases on future technologies and vague scenarios on later use patterns – thus, further LCA methodology development is required. For a pragmatic approach to life cycle oriented eco-design in the highly complex field of electronics, screening assessment tools are preferable to time-consuming life cycle analysis.

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