

is—taking the impossibility of this task into account—exemplary.

The book closes with comments about Nobel laureates in physics: their lives and their ideas. It is interesting to read something about these important scientists, their family backgrounds, and

philosophical ideas. These are important aspects, generally neglected, but of great importance to understand their approach to science and ideas.

This book is recommended for everyone interested in physics, especially new developments. Materials scientists will be

interested in descriptions of the physical principles of alloys, magnetic materials, semiconductors, and devices and materials using these phenomena.

**Reviewer:** *Dieter Vollath is CEO of NanoConsulting, Stutensee, Germany.*



**Material Alchemy**

Jenny Lee

BIS Publishers, 2015

152 pages, \$26.81

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Alchemy has been a fascinating topic for professional and lay scientists for a long time. Some famous scientists have pursued it secretly even as chemistry was taking over in the 17th century. It is not the aim of this book to go back to those times but to draw attention to the fact that materials are now being made and used in ways that were once thought impossible.

If you have an interest in art, this book will tell you how new materials are created, and if you are a materials scientist, it will walk you through the studios of some creative designers (the author, Jenny Lee, is at Studio Aikieu). There is a free app associated with the book that you should download before beginning. This will allow access to additional “hidden” content. The app recognizes images and plays animations. Also, there is a camera icon to take photographs, allowing the reader to have an interactive experience with the designer.

The book has six sections. The first called “The Vision” forecasts that synthetic biology, three-dimensional printing, and nanotechnology will change our concept of materials. It summarizes eight design projects where materials are used not only in a utilitarian way, but also to engage all senses and address moods and tactility. Examples come from garments, dyes, and the fashion industry; bioplastic from glucose found in crabs; and ceramic glazes from dust. The second chapter, “Low-Tech,” shows how revisiting simple technologies can stimulate creativity. The next chapter, “Gastronomy,” discusses the use of kitchen ingredients to fashion unusual materials. The fourth chapter, “The Laboratory,” takes a do-it-yourself approach to creating materials such as pigments and sculptures using exothermic reactions. The next chapter, “High-Tech,” is devoted to interactive

design using shape-memory alloys and sensors. The book ends with a chapter on “The Alchemists,” which covers energy harvesting, dyes from soils, chitin polymer from the shield of beetles, bio-filters from microorganisms such as extremophiles, and emerging biotechnologies.

The book is different from what most readers of *MRS Bulletin* read professionally. It is a combination of a coffee table book and a workbook. In a book of 152 pages, there are 48 color photos (most of them full page), 12 pages of technical data, and 11 workshops to facilitate material exploration. The book lists 32 websites of suppliers, 35 materials organizations, and 29 books for further reading. There are 27 references of which seven are books; the rest are websites—no journal articles. There is not a single equation. No topic is discussed in depth, and the terminology is often unfamiliar to a materials scientist. However, the book introduces artists and designers to new materials, and shows materials scientists what is expected of them and how one must try to be a materials scientist and designer simultaneously.

**Reviewer:** *N. Balasubramanian is an independent research scholar working in Bangalore, India.*

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