

COURSE ADOPTIONS

Visit www.cambridge.org/lesar to request an exam copy today!

MRS MEMBERS

always receive 20% off Cambridge science/engineering books and proceedings!

Enter Discount Code MRSMEMBER at checkout to apply the MRS Member discount.

Not an MRS Member? Join today at www.mrs.org

ORDER TODAY

Online

www.cambridge.org/lesar

customer_service@cambridge.org

800.872.7423

845.353.4141

Introduction to Computational Materials Science **Fundamentals to Applications**

Now Available. Purchase Your Copy Today!

Author

Richard LeSar, Iowa State University

About the Book

Emphasising essential methods and universal principles, this textbook provides everything students need to understand the basics of simulating materials behavior. All the key topics are covered from electronic structure methods to microstructural evolution, appendices provide crucial background material, and a wealth of practical resources are available online to complete the teaching package. Modeling is examined at a broad range of scales, from the atomic to the mesoscale, providing students with a solid foundation for future study and research. Detailed, accessible explanations of the fundamental equations underpinning materials modelling are presented, including a full chapter summarising essential mathematical background. Extensive appendices, including essential background on classical and quantum mechanics, electrostatics, statistical thermodynamics and linear elasticity, provide the background necessary to fully engage with the fundamentals of computational modelling. Exercises, worked examples, computer codes and discussions of practical implementations methods are all provided online giving students the hands-on experience they need.

Key Features

- · Examines modelling materials across a broad range of scales, from the atomic to the mesoscale, providing students with a solid foundation for future study and research
- Presents detailed, accessible explanations of the fundamental equations underpinning materials modelling and includes a full chapter summarising essential mathematical background.
- Extensive appendices, including essential background on classical and quantum mechanics, electrostatics, statistical thermodynamics and linear elasticity, provide students with all the background necessary to fully engage with the fundamentals of computational modelling

Hardback | ISBN: 9780521845878 428 pages 339 b/w illus. 15 tables

List Price: USD 95.00

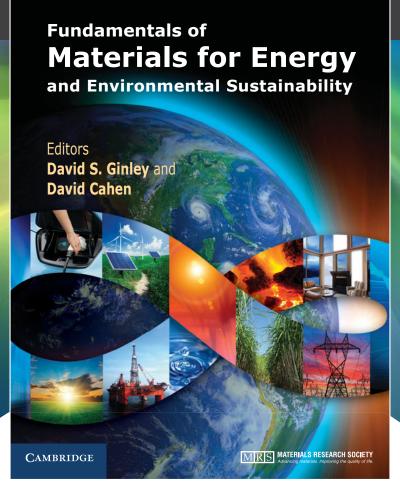
MRS Member Discount Price: USD 76.00

Electronic | ISBN: 9781139033398

Visit ebooks.cambridge.org for more information.







Purchase your copy today! www.mrs.org/energybook

Hardback ISBN: 9781107000230 \$79.00 MRS Member Price \$99.00 List Price

Whether you are a student taking an energy course or a newcomer to the field, this **TEXTBOOK** will help you understand critical relationships among environment, energy and sustainability.

Leading experts provide comprehensive coverage of each topic, bringing together diverse subject matter by integrating theory with engaging insights. Each chapter includes helpful features to aid understanding, including a historical overview to provide context, suggested further reading and questions for discussion. Every subject is beautifully illustrated and brought to life with full-color images and color-coded sections for easy browsing, making this a COMPLETE EDUCATIONAL PACKAGE.

Sections Include:

- Energy and the Environment— The Global Landscape
- Nonrenewable Energy Sources
- Renewable Energy Sources
- Transportation
- Energy Efficiency
- Energy Storage, High-Penetration Renewables and Grid Stabilization

Fundamentals of Materials for Energy and Environmental Sustainability

Editors

David S. Ginley and **David Cahen**

org/10.1557/jmr.2013.208 Published online by Cambridge University Press

2013 MRS Membership Application MRS MATERIALS RESEARCH SOCIETY Advancing materials. Improving the quality of life.

MRS Membersh	ip Rates		Billing & Shipping Address	
☐ I am a new member	☐ Please renew my m	nembership	Name: First Middle	Last
Rates are for 12 months and include complimentary subscription to MRS Bulletin, MRS Communications, and access to the MRS Online Proceedings Library.			Membership ID# (if renewing)	
Begin Membership:		uly 1, 2013	Institution	Dept./Mail Stop
Regular Membershi		\$	P.O. Box	Street
Student Membershi		\$		
Retired/Unemployed	\$ 30.00	\$	Postal Code	City
Add a subscription to Journal of Materials Research. Subscription will begin on membership date. All subscription options to JMR include online access			State/Province Zip Tel: Country Area/City Local Number	Country Fax: CountryArea/City Local Numb
	January 1986 to the current issue	e!		
Member Subscription	on – online only \$100.00	\$	E-mail address	
Member Subscription – print and online North America \$248.00 \$ Rest of World \$303.00 \$			Note: The address above will also be used in future MRS Member Directori unless you request an alternate address for the Directory.	
Subtotal		\$		
			Student Applicants	
Materials Resea	arch Society Foundation (o	ptional)	I am currently enrolled as a full-time son a thesis or dissertation.	tudent, or I am working full-time
the MRS mission, enco	erials Research Society Foundati ouraging scientific study and innov ance and extend its awards, honor well as fund new member-driven	vation— rs, education and	Signature	Date
I am pleased to supp	ort the Materials Research Socie	ety Foundation.	Member Demographics (opti	onal)
□ \$10 □ \$25	□ \$50 □ Other		Current Employment Status	Title/Job Function
□ I would like my donation to be anonymous Contribution Options: □ Education and Outreach Programs □ Grassroot, Member-Proposed Projects □ University Chapter Special Projects □ Graduate Student Awards Unless specifically designated above, your contribution			□ Employed □ Student □ Retired □ Unemployed Highest Level of Education □ Doctorate degree/equivalent □ Master's degree /equivalent □ Bachelor degree/equivalent	Executive/Management Scientist/Engineer Professor Department Chair Sales/Marketing Press Student Retired Other
will be used for MRS Education and Outreach Programs. The Materials Research Society Foundation operates as a program of The Materials Research Society. The official registration and financial information of the Materials Research Society Foundation may be obtained from the Pennsylvania Department of State by calling toll free, within Pennsylvania, 1.800.732.0999. Registration does not imply endorsement.		☐ High school graduate/equivalent ☐ Other Year of Highest University Degree Earned ☐	Gender ☐ Male ☐ Female Race/Ethnic Origin ☐ Asian	
Payment Inform	ation			☐ Black or African Descent ☐ Hispanic
►►► ENTER PAYMENT TOTAL HERE: \$ Check/money order enclosed—payable to Materials Research Society □ Bill my credit card:			STUDENTS ONLY Current Student Status Doctoral Student Graduate Student Undergraduate Student Academic Affiliation Expected Graduation Date	
☐ MasterCard ☐	☐ VISA ☐ American Express		Academic Affiliation	International Members Only
Card No.	Exp. Date		Expected Graduation Date	Do you belong to a group (ethnic, gender, or other) that is considered underrepresented in the fields of Materials Science and Engineering
Signature Mail or Fax Join/Renew Online	Materials Research Society 506 Keystone Drive Warrendale, PA 15086 USA Tel 724.779.3003 Fax 724.779.4732 www.mrs.org/join		Institution Type Please check all that apply Academic Industry Government/Military Non-Profit/Professional Association Other	(including Physics, Chemistry, Engineering) in your country? Yes No If yes, please specify your underrepresented group
	ry of any subscription back issues. ### district ### subscription: \$29 Regular, \$17 St	udent	☐ I am interested in volunteer opport	runities with MRS

https://doi.org/10.1557/jmr.2013.208 Published online by Cambridge University Press

MATERIALS RESEARCH SOCIETY®

2013 Board of Directors

Officers

O. Auciello, President

B.M. Clemens, Immediate Past President

T. Benson Tolle, Vice President and President-Elect

S.J. Hearne, *Secretary*M.R. Fitzsimmons, *Treasurer*T.M. Osman, *Executive Director*

Directors

A.C. Arias S.M. Haile
S.M. Baker A.M. Hodge
D. Cahen O. Kraft
D.B. Dimos H. Matsumura
S.J. Eglash F.C. Meldrum
C-B. Eom E.A. Stach
S. Ermer S.K. Streiffer

E. Garfunkel S.E. Trolier-McKinstry

2013 Publications Committee

P.C. McIntyre, Chair

P.B. Messersmith, Editors Subcommittee

R.A. Vaia, New Publication Products Subcommittee

J.M. Phillips, Publications Quality Subcommittee

2013 MRS Committee Chairs

M.S. Whittingham, Academic Affairs

C.B. Carter, Awards

N. Bassim, Government Affairs

D.S. Ginley, Meetings Committee

Y. Chabal, *Member Engagement* P.C. McIntyre, *Publications* A. Risbud. *Public Outreach*

MRS Headquarters

T.M. Osman, Executive Director
J.A. Dillen, Director of Finance and Administration
P.A. Hastings, Director of Meeting Activities

E.K. Novak. Director of Communications

Journal of Materials Research Founding Sponsors

Allied-Signal Inc. Xerox Corporation

About the Materials Research Society

The Materials Research Society (MRS®) is a not-for-profit scientific association founded in 1973 to promote interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes over 16,000 scientists from industrial, government, and university research laboratories in the United States and abroad

The Society's interdisciplinary approach to the exchange of technical information is qualitatively different from that provided by single-discipline professional societies because it promotes technical exchange across the various fields of science affecting materials development. MRS sponsors three major international annual meetings encompassing many topical symposia, as well as numerous single-topic scientific meetings each year. It recognizes professional and technical excellence, conducts tutorials, and fosters technical exchange in various local geographical regions through Section activities and Student Chapters on university campuses.

MRS publishes symposia proceedings, the MRS Bulletin, and other volumes on current scientific developments. The Journal of Materials Research, the archival journal spanning fundamental developments in materials science, is published twenty-four times a year by Cambridge University Press for the MRS. MRS Communications is a full-color letters and prospectives journal focused on groundbreaking work across the spectrum of materials research.

MRS regular and student members may subscribe to *Journal of Materials Research*. See inside front cover for subscription rates for *Journal of Materials Research*.

MRS is an Affiliated Society of the American Institute of Physics and participates in the international arena of materials research through associations with professional organizations.

For further information on the Society's activities, contact MRS Headquarters, 506 Keystone Drive, Warrendale, PA 15086-7573; telephone (724) 779-3003; fax (724) 779-8313.



A publication of the

 M_R MATERIALS RESEARCH SOCIETY Advancing materials. Improving the quality of life.

Periodical Rate Postage Paid at New York, NY and Additional Mailing Offices

ISSN: 0884-2914

Postmaster—Send change of address notice to:

Cambridge University Press 100 Brook Hill Drive West Nyack, NY 10994-2113, USA