

## SCHOOL OF MATERIALS SCIENCE & ENGINEERING

### RECOMMENDED BOOKS FOR 2009/2010 SEMESTER 1

#### MSXXXX – Solid State Chemistry of Functional Materials

##### **References:**

1. A.R. West Solid State Chemistry and its Applications, John Wiley & Sons, 1984.
2. C.N.R.Rao and J. Gopalakrishnan, New Directions in Solid State Chemistry, Cambridge University Press, 1997

#### MSXXXX – Advanced Polymer Characterization

##### **References:**

1. Polymer Characterization: Physical Techniques, 2<sup>nd</sup> edition, D.Campbell, R.A.Pethrick, J.R.White : Stanley Thornes, UK, 2000.
2. Methods of X-ray and neutron scattering in polymer science, Ryong-Joon Roe, Oxford University Press, 2000
3. The Physics of Polymers, G.Strobl, Springer-Verlag, 1996.

#### MS9006: Research Methodology and Philosophy

To be advised

#### MS9010: Crystal Chemistry: Theory & Practice

##### **Bibliography:**

##### Crystal Chemistry and Crystallography

1. QD945.M235: Crystallography in modern chemistry: a resource book of crystal structures, Mak, Thomas C. W.
2. QD908.I61 International tables for crystallography. Brief teaching edition of volume A, Space-group symmetry 4th, rev. and enl. ed. Hahn, Theo.
3. QD905.2.F981 Fundamentals of crystallography Giacobozzo, Carmelo.
4. QE391.P47M682 Perovskites : modern and ancient Mitchell, Roger H.
5. QD905.2.M496 Crystal structures : a working approach, Megaw, Helen D.
6. QD921.S927 Structural characteristics of materials, Finniston, H. M.

##### X-ray Diffraction

1. QD945.W286 X-ray diffraction Warren, B. E.
2. TA417.25.K91 Introduction to diffraction in materials science, and engineering, Krawitz, Aaron D.
3. QD921.H429 Comparative crystal chemistry: temperature, pressure, composition, and the variation of crystal structure, Hazen, Robert M.
4. QC482.D5C967 Elements of x-ray diffraction, Cullity, B. D.
5. TA417.25.X1 X-ray characterization of materials, Lifshin, Eric.

##### Electron Microscopy

1. QD906.7.E37E38 Electron microscopy and microanalysis of crystalline materials, Belk, J. A.
2. TA417.23.E16 Structural and chemical analysis of materials : X-ray, electron and neutron diffraction; X-ray, electron and ion spectrometry; electron microscopy Eberhart, J. P.
3. QH212.S3S283SEM Scanning electron microscopy and x-ray microanalysis 3<sup>rd</sup> ed. , Goldstein, Joseph
4. QH212.T7D278 Introduction to conventional transmission electron microscopy De Graef, Marc.
5. QH212.T7S744 High-resolution electron microscopy Spence, John C. H.
6. TA417.23.S556A Analytical electron microscopy for materials science Shindo, Daisuke.
7. TA417.23.F974 Transmission electron microscopy and diffractometry of materials Fultz, B. (Brent)
8. QH212.E4G652E Electron microscopy and analysis Goodhew, Peter J.
9. TA417.23.S556 High-resolution electron microscopy for materials science Shindão, D.
10. QH212.S3R363 Scanning electron microscopy : physics of image formation and microanalysis, Reimer, Ludwig
11. QC454.E4E29 Electron energy-loss spectroscopy in the electron microscope, Egerton, R. F.
12. TA417.23.L869 Electron beam analysis of materials, Loretto, M. H.

13. TA417.23.W722 Practical analytical electron microscopy in materials science, Williams, David

### MS9022 –Crystallographic Analysis of Materials

#### **References:**

1. Polymeric Biomaterials, 2nd Edition, edited by S.Dimitriu, Marcel Dekker: **ISBN 0-8247-0569-6 (2002)**
2. Biomaterials Science: An Introduction to Materials in Medicine (2<sup>nd</sup> Edition), B.D.Ratner, A.S.Hoffman, F.J.Schoen and J.E.Lemons, Eds., Academic Press, 1996. ISBN 0-12-582460-2
3. Controlled Release of Biologically Active Agents by R.W.Baker, John Wiley & Sons, New York (1987).  
Treatise on Controlled Drug Delivery by A.Kydonieus, Marcel Dekker, 1992.
4. Biomaterials Science and Engineering, by J.B.Park, Plenum press, 1984.
5. Tissue-Biomaterial Interactions, Dee, Puleo and Bizios, Wiley-Liss, 2002.

### MS9031 – Organic Polymer Electronics

#### **References:**

1. Electronic Processes in Organic Crystals and Polymers, Second Edition by Martin Pope and Charles E. Swenberg, Oxford University Press.
2. Introduction to Molecular Electronics, M.C. Petty, M.R. Bryce, and D.Bloor, Edward Arnold (1995)
3. Principles of Fluorescence spectroscopy, by J.L.Lakowicz; Kluwer Academic/Plenum Publishers (1999)
4. Organic Electronics Materials-Conjugated polymers and low molecular weight organic solids by R. Farchioni and G. Grosso; Springer
5. Encyclopedia of Materials Characterization by D. Briggs and M. P. Seah Encyclopedia of Materials Characterization; C. R. Brundle, C. A.Evans, and S. Wilson, Butterworth
6. Photoelectron Spectroscopy by J. H. D. Eland, Butterworths & Co. Publishers, 1984 (2nd ed.)

### MS9045 – Computer Modelling of Materials

#### **References:**

1. Richard M Martin, Electronic Structure: Basic Theory and Practical Methods, Cambridge University Press, 2004
2. Kaxiras, E., *Atomic and Electronic Structure of Solids*, Cambridge University Press, 2004.
3. Leach, Andrew R., *Molecular modelling : principles and applications*, Prentice Hall, 2001.
4. Allen, M.P. & Tildesley, D.J., *Computer Simulation of Liquid*, Oxford University Press, 1987
5. Binder, K, *The Monte-Carlo Method in Condensed Matter Physics*, Springer,1992

### MS9051: Advanced Nanomaterials

#### **References:**

1. Jacob N Isrealachvili, *Intermolecular surface forces*, second edition, Elsevier, 1991
2. review papers

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