课程名（Coursename）
Organic Solids

课程代码（Coursenumber）
L7

课程对象（Audience）
Graduates

开课教师（Teacher）
Prof. W. Jones and Dr G. M. Day

学期（Semester）

课程描述（Description））
This course builds on the lecture course Chemistry of Materials given in Part II (although it is not required that students have taken this course). The first six lectures of the course, given by WJ, will cover aspects of crystal chemistry, structure and reactivity of organic solids. Examples of lattice controlled reactions will be given, including photochemical and thermal. Particular emphasis will be placed on how solid state properties impact on the development of drug products in the pharmaceutical industry. Experimental approaches to understanding molecular packing will be described and will lead into the second part of the course.
Due to developments in simulation methods, and the recent rapid increase in available computing power, there has been an increased role of molecular modelling in developing our understanding of the organic solid state. The second half of the course (6 lectures given by GMD) will cover practical aspects and several applications of molecular modelling to understanding and predicting structure and properties of molecular solids. The main intermolecular interactions in organic solids will be discussed and practical aspects of the modelling of these interactions will be addressed. Powerful applications of molecular modelling will then be described, including the prediction of crystal properties and the developing field of ab initio crystal structure prediction. Applications of both lattice dynamics and molecular dynamics simulations in modelling the organic solid state will then be addressed, including dynamic contributions to the free energy of crystals and the characterisation of vibrational spectra of molecular crystals.

课时信息（Totalhours）

教参信息（Textbookinfo）
1 Solid-phase Organic Syntheses by Jay Siegel (Hardcover - Dec. 30, 2010)
ISBN-13: 978-0471385257
世界各地拥有馆藏的图书馆（OCLC）:4
2 Organic Superconductors (Springer Series in Solid-State Sciences) by Takehiko Ishiguro, Kunihiko Yamaji, and Gunzi Saito (Paperback - Dec. 17, 2001)
ISBN-13: 978-3540630258
世界各地拥有馆藏的图书馆（OCLC）:174
3 Solid-Phase Organic Synthesis by Kevin Burgess (Hardcover - Dec. 14, 1999)
ISBN-13: 978-0471318255
4 Organic Molecular Solids (Physics Textbook) by Markus Schwoerer and Hans Christoph Wolf (Paperback - Mar. 26, 2007)
ISBN-13: 978-3527405404
世界各地拥有馆藏的图书馆（OCLC）:128
5 Linker Strategies in Solid-Phase Organic Synthesis by Peter J. H. Scott (Hardcover - Dec. 21, 2009)
ISBN-13: 978-0470511169
世界各地拥有馆藏的图书馆（OCLC）:94
6 Resource Recovery and Reuse in Organic Solid Waste Management (Integrated Environmental Technology) by Piet Lens, Bert Hamelers, and Harry Hoitink (Hardcover - Nov. 2, 2007)
ISBN-13: 978-1843390541
世界各地拥有馆藏的图书馆（OCLC）:56
7 Organic Crystal Engineering: Frontiers in Crystal Engineering by Prof Edward R.T. Tiekink, Jagadese Vittal, and Michael Zaworotko (Hardcover - Mar. 22, 2010)
ISBN-13: 978-0470319901
世界各地拥有馆藏的图书馆（OCLC）:51
8 Excitations in Organic Solids (International Series of Monographs on Physics) by V. M. Agranovich (Hardcover - Apr. 25, 2009)
ISBN-13: 978-0199234417
世界各地拥有馆藏的图书馆（OCLC）:118