

Table of Contents

1. Introduction	1
1.1 The Subjects	2
1.2 Literature Review	7
1.3 Concepts in the Study	9
1.4 Methods and Approaches of the Study	14
2. Historical Overview: R&D in China's Universities and Its Roles	21
2.1 Brief History of China's University R&D System	22
2.1.1 Brief development history of China's universities	24
2.1.2 Development of China's university R&D system	27
2.2 Scientific and Technological Activities in Universities	32
2.2.1 R&D activities in China's universities	32
2.2.2 R&D achievements application and technological service	36
2.3 R&D management in China's universities	37
2.3.1 Data of China's university R&D in national R&D system	37
2.3.2 R&D management in China's universities	40
3. Basic Patterns of Technology Transfer from University to Industry in China	43
3.1 Features of Technology developed by China's Universities	44
3.2 General Patterns of University Technology Transfer	46
3.2.1 Different patterns from different viewpoints	47
3.2.2 Three basic patterns from viewpoint of technology flow	51
3.3 Pattern of Collaborative Research	54
3.3.1 Introduction of university-industry collaboration	55

3.3.2	Forms of university-industry collaborative research	56
3.3.3	Motive analysis of university-industry collaborative research	63
3.3.4	Case study of university-industry collaborative research	68
3.4	Pattern of Technology Assignment	71
3.4.1	Technology assignment related concepts	71
3.4.2	Data of technology assignment and patent license	73
3.4.3	Case study of university technology assignment	80
3.5	Pattern of University-owned Scientific & Technological Enterprises	82
3.5.1	Introduction of university-owned S&T enterprises	86
3.5.2	Spin-off modes of university-owned S&T enterprises	95
3.5.3	Influential factors on university-owned S&T enterprises	105
3.5.4	Effects of university-owned S&T enterprises	107
3.5.5	Comparison of university spin-offs in China and the West	109
3.5.6	Chinese university science parks	110
4.	Theoretic Approach: TD-MD Model Analysis	117
4.1	Review of Theoretical Models for University Technology Transfer	117
4.2	TD-MD Model for Technology Transfer from University to Industry in China	122
4.2.1	Key elements in a theoretical model of university technology transfer	122
4.2.2	TD-MD model in detail	127
5.	Patent in China's Universities	139
5.1	Introduction of China's Patent System	139
5.1.1	China's patent system and the main contents of the patent law	140
5.1.2	The administration structure of China's patent system	144

5.2 Patenting in China's Universities and Management	148
5.2.1 University patenting in the 10 th FYP (2001-2005)	150
5.2.2 Patent management and policies in China's universities	152
5.3 Technology Transfer Related Patent Protection in China's Universities	158
5.3.1 Intellectual property management in national R&D programs	159
5.3.2 Service patent and non-service patent	161
5.3.3 Patent ownership in university-industry cooperation	163
5.3.4 Patent license process in China's universities	166
5.4 SME-orientated IPRs Strategy for China's Universities	170
6. Comparative Study on University Technology Transfer between Germany and China	173
6.1 General Introduction of R&D in Germany and China	174
6.2 High Education Systems in Which University Technology Transfer Occurs in Germany and China	179
6.2.1 Pyramid structure of Chinese universities	182
6.2.2 The Excellence Initiative of German universities	184
6.3 Innovation and R&D Systems on Which University Technology Transfer depends in Germany and China	189
6.3.1 German R&D system and university-industry relationship	191
6.3.2 China's R&D system and university-industry relationship	197
6.4 Sources of University R&D Funds Which Define the Basis of University Technology in Germany and China	204
6.5 Management Structures and Policies for University Technology Transfer in Germany and China	216
6.6 Channels and Patterns of University Technology Transfer in Germany and China	223

7. Conclusion	227
Zusammenfassung	237
Nachwort	240
Bibliography	243