长摘要规范

1、文摘篇幅：

中文长文摘字数要求在800～1000字，英文长文摘内容与中文对应。

2、文摘结构：

（1）目的——研究、研制、调查等的前提、目的和任务，所涉及的主题范围；

（2）方法——所用的原理、理论、条件、对象、材料、工艺、结构、手段、装备、程序等；

（3）结果——实验的、研究的结果，数据，被确定的关系，观察结果，得到的效果，性能等；

（4）结论——结果的分析、研究、比较、评价、应用，提出的问题，今后的课题，假设，启发，建议，预测等；

（5）其他——不属于研究、研制、调查的主要目的、方法和结论，但具有创新性和学术交流价值的重要内容。

3、文摘内容

文摘要突出作者原创性工作,应排除本学科领域已成为常识的内容，不得简单重复题名中已有的信息，也不得与引言相混。文摘要着重反映出文章的创新、独到之处，尽量删除背景信息或过去的研究，只叙述新信息和发现、最关键的数据等。另一方面，不得将未来计划等原文献本身未含的信息或主张写入文摘之内。

文字简洁，取消不必要的字句（例如：In this paper、in detail、briefly、mainly、not only… but also等）尽量简化一些措辞和重复的单元。例如，用“at 250℃to 300℃”代替“at a temperature of 250℃to 300℃”、用“the results show …”代替“from the experimental results, it can be concluded that”

4、避免主观评价

一般不要对论文做自我主观评价,尤其是不要自己标榜自己的研究结果。避免使用“首次”、“第一”或“比较好”等自我评价的词语和“具有……的意义”、“奠定了……基础”、“具有……参考价值”、“对……大有帮助”、“首次实现了...”等句式。避免出现“本文所谈的有关研究工作是对过去老工艺的一个极大的改进”、“经检索尚未发现与本文类似的文献”、“To our knowledge, there is as yet no paper in the open literature”等表达。

5、规范化

文摘应使用规范化的名词术语（包括地名、机构名和人名等等），不用非公知公用的符号术语。新术语或尚无合适汉文术语的，可用原文或译出后加括号注明原文。缩略语、略称、代号在首次出现处必须加以说明。商品名如需要时应加注学名。应采用国家颁布的法定计量单位。文摘中的缩写要有全称,专业词汇准确（除CAD、DNA等已经演化成为一个词的缩写词外，缩写词首次出现要使用全称和缩写）

6、中文和英文长文摘内容一致，遵循相同的文摘写作要求。

范例：

论文题目：基于专利共类分析的技术网络结构研究

Structural Analysis of Technology Network Based on Patent Co-classification Analysis

原文献中文摘要：

随着科学技术的发展和新兴技术领域的出现,技术网络结构也日趋复杂.本文利用德温特创新专利引文索引数据库(DII)的德温特手工代码(DMC)分类标准,探索由专利构成的技术网络结构.基于1971～2010年的所有专利数据,本文采用科学计量学中的共现分析方法、社会网络分析方法和信息可视化技术,建立大型技术共现矩阵,从而构建技术共现网络,绘制技术共现图谱.

在此基础上,分析不同领域之间技术发展的联系,识别关键技术领域以及同一领域内的技术发展脉络和技术网络结构.

中文长文摘

目的：随着科学技术的发展和新兴技术领域的出现，技术网络结构也日趋复杂。分析不同领域之间技术发展的联系，进行科学、定量的技术网络结构分析十分困难。本文利用德温特创新专利引文索引数据库（DII）的德温特手工代码（DMC）分类标准，探索由专利构成的技术网络结构。

方法：利用德温特手工代码，采用共类分析的方法来研究技术与技术间的网络结构。首先，根据德温特手工代码建立188 ×188的大型共现矩阵。数据范围为1971 ～2010 年这40 年间所有德温特数据库中的专利数据。利用德温特数据库高级检索中的布尔逻辑AND 运算功能得到任意两个手工代码共现的数量。基于德温特手工代码共现次数矩阵，使用社会网络分析软件Netdraw和知识图谱绘制工具VOSviewer对矩阵进行分析。关于技术共类网络的聚类分析，主要采用Girvan Newman 算法。该算法是一种在复杂的系统中探索集群的方法，它主要基于网络连线的中介中心性来进行计算，对中介中心性相对高的连线进行迭代消除，从而对整个网络进行聚类。

结果：从共现网络结构分析中可以看出，该大型网络可以明显地分为几个主要的技术领域聚类：①该网络的中心是以E-芳/脂环/脂肪族为中心的化工技术聚类。②食品技术聚类与制药技术聚类独立为两个聚类，且掺杂着几项比较相关的化工技术，如天然产品、杂环融合环等。这两个聚类分别通过B-芳/脂环/脂肪族和C-芳族与脂环族，脂环族这两个节点与化工技术聚类相连，且这两个节点具有很高的中介中心性，说明其相关技术对于化工技术与食品技术和制药技术的跨学科技术研究与应用起到关键作用。③电气工程及其自动化技术聚类，通过L-有（无）机电与化工技术聚类相连，其中中介中心性比较高的是U-半导体材料加工及U-分立器件等。④电子通信技术聚类，通过W-音像记录系统与电气工程及其自动化技术聚类相连，通过S-电照相与化工技术聚类相连，其中W-广播、无线电与有线传输具有较高的中介中心性。⑤纺织技术聚类，该聚类较小，不过独立于化工技术聚类之外，中介中心性较高的是F-纺织应用。化工技术聚类位于整个网络的中心，其中E-芳 / 脂环 / 脂肪族具有最高的中介中心性，是整体网络中心的中心。周围的四个技术聚类较为独立，但食品技术与制药技术分支得并不明显。从德温特手工代码知识图谱分析看，网络中主要有黄色、红色、绿色、蓝色四大聚类。黄色聚类中最大的节点是A-聚合物应用，绿色聚类中最大的节点是L-有(无)电机和 T -数字计算机，而蓝色聚类中最大的节点是B-天然产品，红色聚类中相对较大的节点是E-芳/脂环/脂肪族和S-科学仪器。这些节点共现强度最大，是与其他技术类别联系最为紧密的关键技术。从技术共类的聚类密度图谱看，A-聚合物应用是图谱中颜色最深、密度最大的部分，另外，以B-天然产品和T-数字计算机为中心的聚类以及L-有(无)机电的聚类颜色也较深，这些都是共现强度较大的关键技术。在黄色、绿色和蓝色的部分，可以清晰地看到技术与技术之间是如何产生联系，并过渡到其他关键技术的。

结论：德温特手工代码的共现可以近似看作技术类别的共现，因此，本文构建的德温特手工代码共现网络其实就是一个技术类别共现网络。通过该网络可以反映各个技术类别在专利应用中的地位，对该技术网络进行细致分析，可以进一步判断每一个技术集群中的关键技术。技术类别的共现强度因技术领域不同而异，不同领域的技术共现强度差别很大，很大，尤以化工技术聚类中的节点共现强度最高。通过共现网络可以反映技术类别之间的联系。

原文献英文摘要：

As the development of science and technology, the technology network structure is becoming more

complex. Using the patent data in DerwentInnovation Index (DII), this paper analyzes the co-classification network of Derwent Manual Code (DMC) of patents in all technology fields. We record all the patent data in DII from 1970 to 2010. In the proposed approach, large co-classification matrices are employedto generate the DMC co-classification networks. Analysis is pursued at different levels of aggregation, and present more information about the network. As the organizers of patents into classes, this kind of co-classification patterns can visualize the ensemble of all the technological fields in theirmutualrelations. As a result, we can not only identify the key technological knowledge in certain fields, but also figure out how different technological fields are connected an jointed.

英文长摘要：

Objectives: As the development of science and technology, the technology network structure is becoming more and more complex. It is difficult to figure out how different technological fields are connected and to analyze the technology network structure quantitatively. Using the patent data in Derwent Innovation Index (DII), the co-classification network of Derwent Manual Code (DMC) of patents in all technology fields is analyzed.

Methods: The method of co-classification was used to analyze the network structure between technologies based on DMC. The first thing is to use DMC to build the co-occurrence matrix with the size of 188 X 188. The patents data were collected from DII from 1971 to 2010. The number of co-occurrence between two random manual codes were obtained by the calculation of Boolean logic operation AND. Secondly, based on the co-occurrence matrix of Derwent Manual Code, the matrix was analyzed by Netdraw and VOSviewer. With respect to cluster analysis of technology co-classification network, we used the Gervan Newman algorithm, which is a clustering method in complex systems, eliminating the lines of high Betweenness centrality by iteration for network clustering.

Results: From the co-occurrence network structure analysis, this large network could be classified somemajor clusters apparently: 1. The center of the network is chemical technology cluster, which is mainly E-aromatic/alicyclic/aliphatic. 2. Food technology and pharmaceutical technology clusters are independent, mixing some relevant chemical technologies, such as natural product, heterocyclic ring and fusion ring. These two clusters are connected to chemical technology cluster by the nodes of B-aromatic/alicyclic/aliphatic and C-aromatic/alicyclic, which have high betweenness centrality, demonstrating that the related technique are crucial to the interdisciplinary research of chemical-food technology and chemical-pharmaceutical technology. 3. Electrical engineering and automation technology cluster is connected to chemical technology cluster by organic electricity or inorganic electricity, in which U-semiconductor material processing and U-discrete device have relative high betweenness centrality. 4. Electronic communication technology cluster is connected to electrical engineering and automation technologycluster by W-video recording system and to chemical technology cluster by S-electrophotography, in which W-broadcasting, radio and wire transmission have relative high betweenness centrality. wire transmission have relative high betweenness centrality. 5. Textile technology cluster is relative small, but independent of chemical technology cluster, in which F-textile application has relative high betweenness centrality. Chemical technology cluster is located the center of network, in which E-aromatic/alicyclic/aliphatic has the highest betweenness centrality, which is the center of network center. Four surrounding clusters are relative independent; however food technology and pharmaceutical technology are not separated distinctly.

According to the analysis on the DMC knowledge map, four clusters including yellow, red,green, blue can be seen. The biggest node in the yellow clusters is A-polymer application, in the green is L-organic (inorganic) electricity and T-digital computer, in the blue is B-natural product, in the red is E-aromatic/alicyclic/aliphatic and S-scientific instrument. These nodes have the highest co-occurrence intensity and link the other technologies most closely. Referring to the cluster density map of technology co-classification, the darkest and highest-density in the map is A-polymer application. In addition, clusters centered on B-natural product, T-digital computer and L-organic (inorganic) electricity are relative dark, showing the high intensity of co-occurrence. In the yellow, green and blue parts, it is clear to see how technologies are connected and transferred to the other technologies.

Conclusions: The co-occurrence of DMC can be regard as the co-occurrence of technology category, consequently, the co-occurrence network of DMC which is built in this paper are the co-occurrence network of technology category. The position of different technology categories in the patent application can be reflected by the network. Further study on key technology in each cluster can be achieved through detail analysis of the technology network. The intensity of co-occurrence varies widely between different fields, and the highest point appears in the chemical technology cluster. It can be inferred that, the cooccurrence of DMC can be regard as the co-occurrence of technology category, consequently, the co-occurrence network of DMC which is built in this paper are the co-occurrence network of technology category. The position of different technology categories in the patent application can be reflected by the network. Further study on key technology in each cluster can be achieved through detail analysis of the technology network. The intensity of co-occurrence varies widely between different fields, and the highest point appears in the chemical technology cluster. It can be inferred that, appears in the chemical technology cluster. It can be inferred that, the co-occurrence network shows the relationship between technology categories.