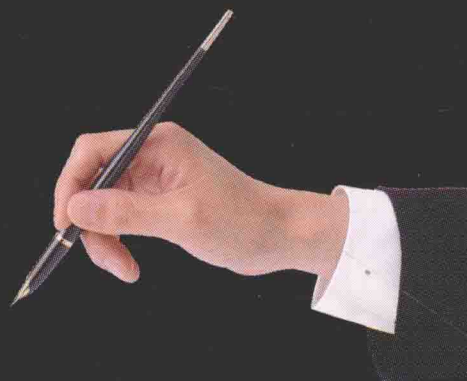


余莉 编著
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ENGLISH WRITING FOR
ACADEMIC PURPOSES

学术英语写作

清华大学出版社

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内 容 简 介

学术英语写作是高级阶段的英语学习者必须掌握的一项英语技能。本书的三位编者长期从事高校英语教学工作,切实了解学生在英语学习中的实际需求和具体困难。本着因材施教和按需施教的原则,针对学生在英语学习中的实际问题和需求,编者从国外一流学术期刊上选择了百余篇学术论文,对其进行了客观细致的语篇分析,总结出学术英语写作的基本要素和规范的语言表述方式,能为高级阶段的英语学习者及研究人员在英语学术写作方面提供卓有成效的技术指导。

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前 言

随着各级英语教育的不断深化, 因需施教的教学理念在高校英语教学实践与研究 中受到越来越多的关注。如何使英语学习成为学生未来职业发展和学术深造的助推器, 是 每一位高校英语教师一直在思考的问题。

相对于初、中级英语教育, 高校英语教育表现出两个明显的区别性特征: 一是学习者的 英语基础存在更大的差异, 二是学习者的目的不尽相同。因此, 如果在高校英语教学中仍然 与在中学阶段一样采用统一的教材, 制定统一的学习计划和要求, 采取统一的教学方法和考 核方式, 则势必导致越来越多的学生对英语学习产生厌学情绪, 使英语学习事倍功半。因 此, 我们决定编写一本能够为高级阶段英语学习者提供实际帮助的学术英语写作方面的 教材。

在长期的教学实践中, 通过对学生英语学习状况的观察, 对学生英语学习中所存在问题的 梳理与分析, 对学生英语学习目的的调查与研讨, 我们发现, 学生在英语学习过程中, 在英 语写作能力方面存在更大的困惑与困难。一方面, 受到母语因素和自身英语功底的影响, 学 生难以用恰当的英语写出符合英语行文规范的文章; 另一方面, 学生在日常的学习中, 甚至 在未来的职业生涯中似乎也并不需要写作所谓的记叙文、描写文、议论文和平常意义上的说 明文, 对于那些希望在学术研究方面继续深造的学生则更是如此。基于此, 我们得出结论: 在高校的英语学习者中确实存在对提高学术英语写作能力的需求。有鉴于此, 我们从国外 一流学术期刊上选择了百余篇学术论文, 对其进行了客观细致的语篇分析, 总结出学术英语 写作的基本要素和规范的语言表述方式, 同时参阅了国内目前已出版的学术英语写作教材, 完成了《学术英语写作》初稿的写作并以讲义的形式在兰州交通大学部分本科生、研究生及 博士生的英语教学中试用了两年。学生一致认为, 这本讲义切中他们在学术英语写作中的 实际问题, 使用方便, 对提高他们的学术英语写作水平有很大的帮助。与此同时, 他们也诚 恳地提出了讲义中存在的一些问题, 我们已对这些问题进行了修正。

与目前国内同类教材相比, 本书略去了对学术英语写作在理论层面的探讨, 直击学习 者在学术英语写作中的实际问题, 以最直接的方式为学习者解决具体问题提供最便捷、最直 观的技术指导, 既适合用作学术英语写作教材, 也可作为各学科研究者撰写英语学术论文的 使用指南。

兰州交通大学教务处、研究生学院及外语学院的领导和老师对本书的编写和使用提出 了中肯的建议和意见, 外语学院研究生邹雨娟、叶艳妮、张丹华、王金凤对本书进行了严格认 真的校对, 清华大学出版社赵益鹏编辑对本书的出版提供了巨大的帮助, 在此一并表示诚挚 的感谢。因为编者水平有限, 书中如有疏漏谬误之处, 请各位读者谅解。

编 者

2015年2月于兰州

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学术英语目前已成为英语教育的新热点,这一现象的出现主要可归因于传统英语教育所面临的困境以及英语本身作为国际通用语的强势地位。传统的英语教育多强调英语作为一般交流工具的功能,所以其选用的教学材料多倾向于文化习俗、日常生活交往、普遍的人类情感、对人们的日常生活产生影响的社会现象以及面向普遍人群的科普材料等。这些材料基本不对任何专业领域进行深入的探究和讨论,所以被称为 General English,即普通英语。英语学习者长期浸润于这类英语学习材料中,导致的一个直接后果便是在学术研究中难以做到“学以致用”,即无法用所学的英语在相关领域内进行对话和交流,以致学习者对英语学习的意义和价值产生极大的怀疑。与此同时,英语作为国际学术界通用语言的地位又迫使非英语国家的学者必须能够熟练、规范地运用英语,去获得相关领域的最新研究成果,与国外同行进行及时、高质量的学术交流,同时将自己的研究成果在国际上加以推广。正是在这一背景下,国内高校的英语专业纷纷结合其学科特点,开设了工程实践英语、商务英语、法律英语、中医英语等学术英语类课程,获得了良好的社会效果。

学术英语写作是学术英语教育的一个重要组成部分,是对科学研究信息和思想的归纳和总结,是对概念、事件和现象的解释、分析、说明和评价,是对相关领域热点论题的讨论。因而,学术英语写作是衡量学生学术英语学习质量的一把重要标尺,也是学习者的学习难点。由于受到英语语言水平的限制,学习者往往很难用规范的学术英语准确介绍自己的研究成果,阐明其研究的价值和意义。同时,学术英语受其表述对象及功能的限制,又形成了独有的行文规范,在遣词、结构、句式等方面表现出很强的规律性,这无疑为学习者迅速掌握学术英语的写作要领提供了很大的可能性。由于学科门类的差异和复杂性,本教材内容涵盖了英文学术论文中的四个基本构成部分,即摘要、引言、结论和致谢。这四部分是英文学术论文的核心部分,也是学术英语写作中共性最强的部分,学习者可以通过本教材快速掌握这四个部分在写作范式上的规律性。

本教材对国外 50 多种重要的学术期刊论文进行了文本分析,总结、归纳出学术英语写作在构成要素和写作范式上的突出特征。同时,通过丰富的例句、范文分析及相关阅读材料,在遣词、结构、句式等方面为读者提供了直观、有效的归纳和总结,能够帮助国内研究人员快速、有效地提高学术英语写作质量。

1.1 学术英语的基本话语特征

1.1.1 人称、时态和语态

学术论文是对一项研究过程和成果的呈现和总结,多从客观的角度,用简练的语言陈述论文的主要内容。从人称代词的使用情况来看,第一人称代词的使用最为常见,而第一人称复数“we”的使用频度远远高于第一人称单数“I”的使用频度。“we”的含义有两种,第一种情况用于叙述论文作者具体完成的某种实验、观察到的现象或得出的结论等;另一种情况是为了引导读者按照作者的思路思考问题,此时“we”不再是作者自己,而是指作者和读者双方,甚至在由一位作者独立完成的学术论文中,亦常使用第一人称复数“we”。在人称代词的使用上,除了多使用“I”和“we”之外,第一人称复数宾格“us”和所有格“our”在英语学术论文中的使用频度也较高。此外,有时也会出现第二人称,通常第二人称的使用主要是为了达到启发的目的,引导读者思考某些问题,如“You might guess that it is more difficult to figure out whether a reaction is spontaneous than to determine which way a car will roll on a hill”。除第一、第二人称代词的使用情况外,无生命第三人称或者用客观对象作主语的无人称句子的使用也很普遍,因为学术论文的着眼点是客观存在的现象、性质以及实验结果和所得出的结论,而不是作者本身,因而常会用到具体名词充当主语。

在时态的使用上,最常用的四种时态是一般现在时、一般过去时、现在完成时和一般将来时。作者需要根据表达的意图选择恰当的时态,如一般现在时可以用于表达对相关领域的关注、研究目的等;一般过去时和现在完成时可以用于回顾前人研究成果、指出前人研究的不足;陈述研究方法和步骤则多使用一般过去时;描述研究的前景和方向则使用一般将来时等。

采用何种语态,既要考虑具体学术论文的特点,又要满足语言表达的需要。相较其他文体,被动语态的使用是英文学术论文的一个突出特征,因为被动语态可以把所讨论的对象放在主语位置,这样更加引人注目。撰写者需要注意的是,应按需选择使用主动语态或被动语态。主动语态多用于描述动作,而被动语态则多用于表达状态、结果和性质。此外,被动语态陈述的口吻更为客观,文体上更为正式,这也在一定程度上符合英文学术论文这一特殊学术文体的需要。

1.1.2 长句与状语

英语动词有十六个时态,对于非英语专业的学习者来说,想运用自如这些时态是有困难的。为了弥补这些不足,可以尝试使用更多状语从句。长句是学术英语中一个突出的话语特征。长句结构严密,表达信息丰富,层次多样,但长句并不意味着复杂的语法句型,可以通过加入状语或状语从句来实现,当然还可以添加定语、定语从句以及名词性结构等来表达更丰富的内容。需要注意的是,在学术论文阅读和写作的过程中,首先要确定主句,然后找到主句中的主语和谓语,最后将着眼点放在从句和其他成分,这样在一定程度上能够帮助我们有效地解读和流畅地撰写英文学术论文。

英文学术论文要突出科学性、严谨性、客观性,避免使用文学性、艺术性和主观性的文

字,但是并不意味着英文学术论文不讲求文采。这里的文采指的是语言流畅、段落分明、叙述简洁、逻辑严密等。

1.2 学术英语的基本结构特征

学术论文通常遵循 IMRD 框架模式,即“引言部分(Introduction)、方法部分(Methodology)、结果部分(Results)、讨论部分(Discussion)”。为了达到学术论文的交际目的,每一部分又由不同的写作要素构成,而这些内在的构成要素因研究内容、方法、目的、性质、背景、对象、学科等诸多因素的不同而呈现出一定差异。内在的构成要素通常可以分为必须性部分(obligatory)和选择性部分(optional)。因此,充分了解每一部分的核心构成要素对于正确、有效地阅读和撰写英文学术论文至关重要。

1. 摘要的结构特征

一篇较为完备的摘要应该向读者准确、凝练、清晰地提供和介绍论文的主要内容,以便读者对论文的意义和价值做出大致的判断。摘要通常包含以下结构要素:(1)论文主题;(2)研究背景;(3)研究目的;(4)研究方法;(5)研究结果;(6)研究结论。

2. 引言的结构特征

作为英文学术论文正文的第一部分,引言部分的写作对于本族语者和非本族语者而言都是困难丛生。充分了解引言的结构特征及构成要素对于有效、流畅地写作引言至关重要。可将引言的宏观结构归纳为以下三个部分:(1)研究现状;(2)研究中心;(3)研究的目的和意义。对于每一个部分的内在构成,又分别由不同的具体要素来实现。在写作过程中,可以根据自身研究的特点、性质对具体要素进行选择 and 组合。引言可以由一段或多段文字构成,其篇幅主要取决于研究的性质、特点和约稿的要求等因素。

3. 结论的结构特征

结论位于论文正文最后,应概括、总结论文中所提及的内容。结论通常包含以下构成要素:(1)总结和回顾;(2)讨论和评述;(3)建议和展望。

1.3 练习题

1. 简要描述英文学术论文的话语特征。
2. 英文学术论文的结构特征是什么?
3. 英文学术论文的摘要、引言、结论部分的结构特征分别是什么?
4. 简要分析以下两篇引言的人称、时态、语态。

I

The moves of a group of European countries toward more integrated financial markets and a single European currency, the Euro, raise the issue of what is an optimal currency area. This further raises the question of whether the Euro Area countries form a common currency area. This is a very timely question because the Euro is currently scheduled to replace national currencies in the Euro Area in 2002.

Most of the previous discussion about optimal currency areas has been couched in

macroeconomic or political terms. Since Mudell originated the concept of an optimum currency area, the debate in economics has focused on the macroeconomic aspects of a common currency area. Malchup points out “there have been a good many attempts to define the concept of an ‘optimum currency area’”. The originally proposed definition was in terms of internal mobility and external mobility of productive factors—perfect intraregional immigration of labor and unrestrained outflow and inflow of capital funds. Other definitions have been in terms of mutual compatibilities of the member countries in matters of economic institutions and coordination of national policies, in the complementarity of their trade patterns, and similar criteria.” Malchup himself takes a political view, saying “Pragmatically, therefore, an optimum currency area is a region no part of which insists on creating money and having a monetary policy of its own.” More recently, Cohen couched his discussion of the costs and benefits of a European common currency in terms of macroeconomic policy.

By concentrating on macroeconomic and political criteria, previous researchers have ignored the requirements that economic theory places on optimizing behavior for any area to have a common currency. In this paper, these microeconomic foundations for the existence of an optimum currency area are set forth. These microeconomic criteria for the existence of an optimum currency area are similar to the criteria for the existence of an aggregate that might be called money in a single country. In the following section these criteria are set forth.

II

Insights into the behavior of pedestrians, and tools to predict this behavior, are essential in the planning and design of public pedestrian facilities such as airports, transfer stations, and shopping malls. Also, when designing timetables for public transit, pedestrian simulation models can be applied to analyze the impact of pedestrian flows between access and egress points (train platforms, bus station, etc.), entries and exits, on the walking times, and pedestrian comfort levels. Managing pedestrian flows through these facilities, for instance by information provision, requires knowledge of the pedestrian flow characteristics as well as of the walking behavior that constitutes the flow. To perform (ex ante) model studies, simulation models predicting pedestrian flows in the walking facilities can be used. A number of simulation tools have been developed for this purpose, for example, PEDROUTE and PAXPORT, SimPed, NOMAD, and Leginon. These models have been applied with success to assist in the evaluation or optimization of designs of new or existing walking facilities. Whether such pedestrian simulation models are used, or whether walking infrastructure design is carried out by other means, it is obvious that good insights into macroscopic feature of the pedestrian flows, as well as insights into the microscopic behavior underlying these features, are very important.

This article describes new and important experimental findings of pedestrian flow theory, in particular, pertaining to behavior of pedestrians and characteristics of

pedestrian flows in the case of bottle necks. To this end, a brief state-of-the-art overview is presented first. In section 3, the experimental design is discussed. Section 4 provides insight into the relations between pedestrian behavior and the macroscopic characteristics of the pedestrian flow. Section 5 provides an overview of the various phenomena that have been observed from the bottleneck experiments (spatial distribution of pedestrians, swaying, dynamic layer formation, and patterns inside the bottleneck). In section 6, composite headway models—differentiating between free and constrained headways—are successfully estimated. Section 7 discusses the implication of the findings to bottleneck capacity analysis.

5. 按照摘要的篇章结构特征简要分析下面的摘要。

Abstract

This paper was presented in part by V. L. Snoeyink as the Simon w. Freese Lecture at the 2002 Canadian Society of Civil Engineer/Environmental and Water Resources Institute of ASCE Environmental Engineering Conference in Niagara Falls, Ontario, Canada, July 22, 2002. The interactions of corroded iron pipe surfaces with water are of importance because they can lead to serious water quality degradation and material deterioration. A conceptual model has been developed in this paper to describe the formation and growth of iron scales, and their reactions that lead to colored water problems. Most corrosion scales have characteristic structural features, such as a loosely held top surface layer, a shell-like layer(s) and a porous core. According to this model corrosion scales are expected to grow from inside the scale via the corrosion reaction, i. e., the conversion of iron metal to ferrous iron. The average oxidation state of iron increases with distance from the pipe wall. The scale structure and scale reactions permit the ferrous iron to be released to the bulk water, where it undergoes conversion to particular ferric iron, which is the cause of colored water. Scale structure and composition play important roles in the reactions of iron scales that lead to iron release, and water quality control to decrease the porosity of the scale is an important means of reducing iron release. It is anticipated that the conceptual model presented here will be used as a basis for changing water quality to minimize colored water formation, and as a guide for further research.

2.1 概述

2.1.1 摘要的定义

摘要又称为概要、内容提要,是以提供论文内容梗概为目的,不加评论和补充解释,简明扼要地叙述论文重要内容的短文,是对论文内容的高度概述和浓缩。摘要通常介于论文题目与正文之间,是科技论文必不可少的一个重要组成部分。

摘要虽然置于正文之前,但通常是写完整篇论文之后再撰写摘要,这样论文作者就能够用清晰凝练的语言表述论文中最重要的部分;摘要中不宜使用图表,不宜举例。

2.1.2 摘要的作用和功能

摘要应具有独立性和自明性,并且拥有与论文等量的主要信息,即不阅读全文,就能获得必要的信息。摘要已经成为学术论文写作中必不可少的组成部分,其主要功能如下:

(1) 让读者尽快了解论文的主要内容,以补充论文题目所提供信息的不足。现代科技文献信息浩如烟海,读者检索到论文题目后是否决定阅读全文,主要是通过阅读摘要来判断。所以,摘要担负着吸引读者和介绍文章主要内容的任务。

(2) 为科技情报文献检索数据库的建设和维护提供方便。论文发表后,文摘、杂志或各种数据库对摘要可以不作修改或稍作修改而直接利用。随着计算机技术和互联网的迅猛发展,网上查询、检索和下载专业数据已成为当前科技信息情报检索的重要手段,网上各类全文数据库、文摘数据库越来越显示出现代社会信息交流的水平和发展趋势。同时,论文摘要的索引是读者检索文献的重要工具,所以论文摘要的质量直接影响着论文的被检索率和被引用频次。

2.1.3 摘要的分类与特点

论文摘要的撰写有其自身的规律,但是每一篇摘要也有不同于其他摘要的特点。在撰写论文摘要时,应充分考虑到不同摘要各自的特点。

摘要可按以下方法进行分类。

1. 按照论文撰写和发表的目的和用途进行分类

1) 学术刊物论文摘要

正式学术刊物通常均要求论文作者提供中英文摘要,关于这类摘要的篇幅,各学术期刊的要求虽略有差别,但大多限定为150~200字。内容通常包括研究目的、研究方法、研究结果和主要结论。

参见下例:

Abstract

The aim of this article is to determine with real data to what extent the hypotheses on which Clement's first formula is based are fulfilled, and to compare the results of applying this formula. To this end the flow demand in the peak period was studied in two distribution networks with different irrigation methods and crops located in the Ebro River basin (northeast Spain). The calibration procedure for this formula proposed by the Center Technique du Genie Rural des Eaux et des Forest (CTGREF) in 1977 was also analyzed. The result was that most of the hypotheses were not fulfilled. Furthermore, the discharge distributions obtained in the period of study did not correspond to a normal distribution. However, comparing the real accumulated probability curve and that calculated by Clement's formula, it was found that the differences between the two curves for probabilities greater than 90% (a wide range of application of the formula) were lower than 9.4%. The reason for this result was found. It was shown also, that the CTGREF adjustment procedure did not provide substantial improvement in the estimation of flows because the aim of the fit was to achieve a normal distribution rather than an accumulated distribution function.

(Journal of Irrigation and Drainage Engineering)

2) 学术会议论文摘要

会议论文摘要往往在会议召开之前几个月撰写,目的是交给会议论文评审委员会评阅,从而决定该论文是否能够录用。所以,这类摘要应比上述第一种摘要略为详细,其字数为200~300字。会议论文摘要的开头有必要简单介绍一下研究课题的意义、目的和宗旨等。如果在撰写摘要时,研究工作尚未完成,全部研究结果还未得到,那么,应在方法、目的、宗旨和假设等方面多花笔墨。

参见下例:

Abstract

Introduction: African-American women (AA) have a lower incidence of breast cancer, yet a higher breast cancer mortality rate than Caucasian women (C). Whether the mortality differences are the result of more aggressive tumors in AA women or the effect of differences in socioeconomic status (SES) is debatable. A clearer understanding of the role of race requires SES to be controlled as a potential confounder, which can be achieved by evaluating outcome within a population with a high proportion of uninsured patients. Our state-run academic medical center serves as a healthcare safety net for the 715 000

uninsured residents of Louisiana. We provide compelling evidence that race is not predictive of outcome for patients with operable breast cancer.

Methods: From our prospective breast cancer database which has been maintained since 1998, we examined the data for all 803 patients with stage 0 to 3 breast cancer. All patients received standard definitive surgical care as well as appropriate adjuvant treatment. Study homogeneity was maintained by standardized treatment, surveillance, and compliance protocols. Primary endpoints were cancer recurrence and death. Statistical analysis performed included Kaplan-Meier survival analysis, log-rank test, Cox proportional hazard model, independent samples t-test, and chi-square test. A p-value 0.05 was considered statistically significant.

Results: Sixty percent of patients were AA ($N=479$ patients) and the mean follow-up time for AA and C patients was 58 months. Almost 70% of patients were classified as either free care or Medicaid. There were no significant differences in tumor size ($p=0.83$), nodal distribution ($p=0.74$), stage distribution ($p=0.88$), or definitive surgery performed ($p=0.32$) between the races. However, AA tend to be younger ($p=0.003$) with a higher tumor grade ($p<0.0001$) than C. The 5-yr overall survival (OS) and disease-free survival (DFS) for the entire cohort was 81% and 68%, respectively. For node-negative disease, the 5-yr OS and DFS was 90% and 78%, respectively ($p<0.0001$), and for node-positive disease, it was 70% and 54%, respectively ($p<0.0001$). The 5-yr OS for stages 0, 1, 2, 3 was 100%, 93%, 83%, and 61%, respectively ($p<0.0001$), and the DFS for stages 0, 1, 2, 3 was 85%, 82%, 71%, and 43%, respectively ($p<0.0001$). These results were comparable with the National Cancer Database. The impact of race on outcome was as follows: The 5-yr OS for AA and C was 80% and 83% ($p=0.21$), respectively, and the 5-yr DFS for AA and C was 69% and 65% ($p=0.19$), respectively. For stage 0, the 5-yr OS was 100% for both AA and C and the 5-yr DFS was 85% for AA and 84% for C ($p=0.90$). For stage 1, the 5-yr OS was 91% for AA and 93% for C ($p=0.41$), and the 5-yr DFS was 82% for AA and 80% for C ($p=0.32$). For stage 2, the 5-yr OS was 81% for AA and 86% for C ($p=0.18$), and the 5-yr DFS was 72% for AA and 68% for C ($p=0.29$). For stage 3, the 5-yr OS was 59% for AA and 61% for C ($p=0.67$), and the 5-yr DFS was 45% for AA and 38% for C ($p=0.35$). On multivariate analysis, race was not an independent predictor of cancer recurrence ($p=0.11$) or cancer death ($p=0.22$).

Conclusion: In a predominantly indigent population, race had no impact on breast cancer outcome. Hence, women who were treated at our academic center with a public hospital can expect to have breast cancer outcome rivaling those reported in the literature. Further study is needed to understand the elements involved in our success.

(*Second AACR International Conference on the Science of Cancer Health Disparities—Feb 3-6, 2009; Carefree, AZ*)

3) 学位论文摘要

学位论文是表明论文作者从事科学研究取得创造性的结果或有了新的见解,并以此为内容撰写成文,作为申请授予相应的学位时考核评审用的学术论文。学位论文分为学士论文、硕士论文和博士论文三个级别,三种论文对学术水平以及对论文的深度和广度虽有不同要求,但学士、硕士和博士论文摘要一般都要用中、英文两种语言撰写。学位论文摘要的字数可因不同级别的论文体现差异,内容也可根据需要分为几个段落。学位论文摘要的内容一般包括研究背景、意义,主旨和目的,基本理论依据、基本假设,研究方法,研究结果,主要创新点和简短讨论等。学位论文摘要应突出新观点、新见解和新方法。

参见下例:

(1) 学士学位论文摘要

Abstract

During the last decades, scientific research has revealed that the size and morphology of materials have great influence on the materials' property and characterization. Compared with bulk materials, nanomaterials have many novel properties such as quantum size effect, surface effect, etc., due to the decrease of the size of materials and the increase of the unsaturated dangling bonds and lattice defects. All of these indicate that nanomaterials have potential applications in various fields such as electromagnetics, optics and catalysis, etc. Gas sensor is one of important components in the field of automatic control. Higher demands of modification are rising for the performances of the as-prepared gas sensors, including the detection limit and the specific response of sample gas. New generation of gas sensors which are based on the semiconductor metal oxides such as SnO_2 and ZnO have shown upstanding foreground in the application field, due to their unique structures with excellent physical and chemical properties. This thesis has reported the synthesis hierarchical nanostructure of ZnO nanoparticles. Also this thesis has reported the synthesis of various kinds of ZnO nanostructures via different solvothermal processes. Structure characterization was taken on ZnO nanostructures via XRD, TEM and HRTEM, etc. Based on those existing literatures, LSS phase-transfer method is introduced to synthesize cubic phase SnO_2 nanoparticles and nanorods. Various kinds of SnO_2 nanorods doped with different kinds of ions have been synthesized via the analogous method. Also, this thesis has reported the synthesis of branched- SnO_2 nanorods which were induced by as-synthesized noble metal nanoparticles via a two steps method. Finally, the gas sensor properties of as-mentioned materials have been studied carefully and we find that minor doping of Pd will improve the character of SnO_2 gas sensor properties prominently.

(<http://oaps.lib.tsinghua.edu.cn/handle/123456789/1366>)

(2) 硕士学位论文摘要

Abstract

Third generation wireless mobile communication networks are characterized by the increasing utilization of data services—E-mail, web browsing, video streaming, etc. Such services allow the transition of the network from circuit switched to packet switched operation (circuit switched operation will still be supported), resulting in increased overall network performance.

These new data services require increased bandwidth and data throughput, due to their intrinsic nature. Examples are graphics-intensive web browsing and video streaming, the latter being delay sensitive and requiring priority over less sensitive services such as E-mail. This increasing demand for bandwidth and throughput has driven the work of third generation standardization committees, resulting in the specification of improved modulation and coding schemes, besides the introduction of more advanced link quality control mechanisms.

Among the several proposals for the evolution from 2G to 3G, GPRS (General Packet Radio Services) and EDGE (Enhanced Data Rates for GSM Evolution) stand out as transitional solutions for existing TDMA IS-136 and GSM networks (they are also referred to as 2.5G systems). In the CDMA arena, WCDMA (Wideband CDMA) has emerged as the most widely adopted solution, with CDMA 2000, an evolution from IS-95, also being considered.

This thesis compiles and analyzes the results of the work by the standardization committees involved in the specification of 3G standards, focusing on the receiver performance in the presence of additive noise, fading and interference. Such performance results will ultimately determine design and optimization conditions for 3G networks.

This document concerns the description of the TDMA-based 2.5G solutions that allow the introduction of multimedia and enhanced data services to existing 2G networks. It focuses on GPRS and EDGE. It also addresses WCDMA—a 3G spread spectrum solution. Such proposals permit the utilization of existing spectrum with increased efficiency, yielding extended network capacity and laying the ground for full support of wireless multimedia applications. The study is focused on the link implementation aspect of these solutions, showing the impact of the modulation schemes and link quality control mechanisms on the performance of the radio link.

(<http://scholar.lib.vt.edu/theses/available/etd-05062002-143129/>)

(3) 博士学位论文摘要

Abstract

This research aims at enhancing the accuracy of land vehicular navigation systems by integrating GPS and Micro-Electro-Mechanical-System (MEMS) based inertial measurement units (IMU). This comprises improving the MEMS-based inertial output

signals as well as investigating the limitations of a conventional Kalman Filtering (KF) solution for MEMS-IMU/GPS integration. These limitations are due to two main reasons. The first is that a KF suppresses the effect of inertial sensor noise using GPS-derived position and velocity as updates but within a limited band of frequency. The second reason is that a KF only works well under certain predefined dynamic models and convenient input data that fit these models, which are not attainable with the utilization of MEMS-based inertial technology. Therefore, if the GPS reference solutions are lost, the accuracy of standalone MEMS-IMU navigation will drastically degrade over time.

The Wavelet Multi-Resolution Analysis (WMRA) technique is proposed in this thesis as an efficient pre-filter for MEMS-based inertial sensors outputs. Applying this pre-filtering process successfully improves the sensors' signal-to-noise ratios, removes short-term errors mixed with motion dynamics, and provides more reliable data to the KF-based MEMS-INS/GPS integration module. The results of experimental validation show the effectiveness of the proposed WMRA method in improving the accuracy of KF estimated navigation states particularly position. Moreover, the Adaptive-Neuro-Fuzzy-inference-system (ANFIS)-based algorithm is suggested and assessed to model the variations of the MEMS sensors' performance characteristics with temperature. The focus is on modeling the gyro thermal variations since it usually dominates the attainable accuracy of INS standalone navigation. Initial results show the efficiency and precision of the proposed ANFIS modeling algorithm. Finally, a new technique augmenting the powerful ANFIS predictor with the traditional KF for improving the integrated MEMS-INS/GPS system performance is presented. The proposed augmentation is utilized either to provide direct corrections to the estimated position by KF during standalone inertial navigation or to supply estimated reference position and velocity error measurements during the absence of GPS solutions, thus keeping the functionality of the KF update engine. Initial test results show the significance of the proposed ANFIS-KF augmentation in reducing position and velocity drifts during GPS outages.

(<http://www.geomatics.ucalgary.ca/links/GradTheses.html>)

4) 脱离原文而独立发表的摘要

这种摘要更应该具有独立性、自含性和完整性。读者无须阅读全文,便可以了解全文的主要内容。

参见下例:

Abstract

The translation of fictional names should observe a different and more flexible theory from the translation of real names, since writers often infuse meaning other than a mere signifier of a character in the appellation of their characters. In her seven novels published so far, Toni Morrison, for example, has employed a variety of appellation for her