普通高等学校规划教材

# 研究生
# 实用英语教程

A Practical English
Coursebook for Postgraduates

○ 主　编：张周易　毛明勇
○ 副主编：杨学云　郭敬谊

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## 内 容 提 要

本书通过科技英语翻译篇、学术英语写作篇和实用英语写作篇三部分共 29 单元,介绍了常见的科技英语翻译技巧与翻译方法,力求强化学生翻译技能;讲解了英语学术论文从选题到撰写提纲、摘要、正文、参考文献的基本方法,为学生日后走上科研之路扫清障碍;罗列了撰写求学简历、工作经历证明,申请奖学金和学历、学位、奖励的方法,为今后有意赴国外深造的学子支招。

本书可作为非英语专业博士研究生、硕士研究生和英语专业本科生、研究生选修教材使用,也可供普通的英语爱好者使用。

# 本书编委会

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# 前　　言

目前,市面上研究生英语方面的辅导书可谓多如牛毛,但大都集中在以通过某些所谓的"重要"等级考试为主的习题集上,很少有以培养学生应用能力为主的、让学生爱不释手的实用书籍。为此,我们特地组织了一批具有丰富教学经验、长期从事研究生英语教学工作的专家和教授共同编写了这本《研究生实用英语教程》。

本教材高举"实用"大旗,力求打造一本便捷的学习用书。学习的重要方式是读书,读书就要思考。"学而不思则罔,思而不学则殆",由此可见学习与思考的重要性。全书共分为三大部分:

1.第一部分为科技英语翻译篇,主要介绍常见的科技英语翻译的技巧与翻译方法,目的在于强化学生的翻译技能,为走上工作岗位奠定较强的翻译能力。

2.第二部分为学术英语写作篇,英语作为一门外语,在英语和英语相关学术领域做研究和撰写论文是一个巨大的挑战。困难在于同学们缺乏足够的英语语言和研究工作所需的基本知识。本部分旨在介绍英语学术论文从选题到撰写提纲、摘要、正文、参考文献的基本方法,为日后走上科研之路铺平道路。

3.第三部分为实用英语写作篇,重点在于为今后有意赴国外深造的学子如何撰写求学简历、工作经历证明,申请奖学金和学历、学位、奖励"支招",为在国外学习、深造扫清障碍。

4.每部分后附有参考答案,书中出现的所有练习的答案均能从中找到,使学习者做到既"知其然"又"知其所以然"。

本书在编写过程中参考了众多的英文著作、工具书和专业期刊论文,引用了不少其他作者的著作,还得到了外语界同行的热情关心和支持。由于编者水平有限,加之时间仓促,书中的疏误在所难免,恳请同行专家和广大读者批评指正。

编　者
2016 年 10 月

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# Unit 1 科技英语特点
## Characteristics of EST

# 上　篇
# 科技英语翻译篇

# Unit 1　科技英语特点
## Characteristics of EST

任何作品均有特定的文体,原文的文体不同,翻译方法也随之而异。

科技英语是反映客观现实世界的工具,为了能准确地描述客观世界的实情,科技英语尽量在语言使用上规范地道,在语言形式上简明准确,在语义理解上直接明了,尽可能不出现语言变异现象。

科技文体崇尚严谨周密,概念准确,逻辑性强,行文简练,重点突出,句式严整,少有变化,常用前置性陈述,即在句中将主要信息尽量前置,通过主语传递主要信息。

试比较:

日常英语

People get natural rubber from rubber trees as a white, milky liquid, which is called latex. They mix it with acid, and dry it, and then they send it to countries all over the world. As the rubber industry grew, people needed more and more rubber. They started rubber plantations in countries with hot, wet weather conditions, but these still could not give enough raw rubber to meet the needs of growing industry.

科技英语

Natural rubber is obtained from rubber trees as a white, milky liquid known as latex. This is treated with acid and dried before being dispatched to countries all over the world. As the rubber industry developed, more and more rubber was required. Rubber plantations were established in countries with a hot, humid climate, but these still could not supply sufficient raw rubber to satisfy the requirements of developing industry.

| 日 常 英 语 | 科 技 英 语 |
| --- | --- |
| 1.通俗化:常用词汇用得多 | 1.专业化:专业术语用得多 |
| 2.多义性:一词多义,使用范围广 | 2.单义性:词义相对单一,因专业而不同 |
| 3.人称化:人称丰富,形式多样 | 3.物称化:多用物称,以示客观 |
| 4.多时性:描述生活,时态多样 | 4.现时性:叙述事实多用现在时 |
| 5.主动性:句子倾向于主动态 | 5.被动态:句子倾向于被动态 |
| 6.简单性:单句、散句用得多 | 6.复杂性:复杂句用得多,复合句用得多 |
| 7.口语化:口语用得多,随意灵活 | 7.书面化:长句用得多,书卷气浓 |

简而言之,**科技文章的特点是:清晰、准确、精练、严密**。科技文章的语言结构特色在翻译

过程中如何处理,是进行英汉科技翻译时需要探讨的问题,但在这之前我们首先应了解清楚科技英语的特点,现分述如下。

# 1. 大量使用名词化结构

《当代英语语法》(A Grammar of Contemporary)在论述科技英语时提出,大量使用名词化结构(Nominalization)是科技英语的特点之一。因为科技文体要求行文简洁、表达客观、内容确切、信息量大、强调存在的事实。

所谓名词化倾向,主要指广泛使用表示动作或状态的抽象名词或起名词功用的动名词。科技文章的语言特点之一是言简意明,简化语言结构的有效途径之一便是名词化。

科技英语中大量使用名词化结构可以缩短句子的长度,译成汉语时则不宜套用英语的这种模式,而是需要根据汉语的表达习惯灵活处理,有时也可将其拓展成汉语的句子。

➤ Archimeds first discovered the principle of displacement of water by solid bodies.

阿基米德最先发现固体排水的原理。

句中 of displacement of water by solid bodies 系名词化结构,一方面简化了同位语从句,另一方强调 displacement 这一事实。

➤ The rotation of the earth on its own axis causes the change from day to night.

地球绕轴自转,引起昼夜的变化。

名词化结构 the rotation of the earth on its own axis 使复合句简化成简单句,而且使表达的概念更加确切严密。例如:

➤ A distribution is described by its measures of central tendency and dispersion tendency.

对集中趋势和离散趋势的测量可以用来描述分布。

➤ By integrating measurement, documentation, and control systems, the use of the IC rollers allows for real-time monitoring and just-in-time corrections in the compaction process.

通过集成测量、文档编制和控制系统,智能压实压路机在压实过程中允许实时监控和即时修正。( IC = intelligent compaction,智能压实)

➤ During analysis of elevator drive system, it is concluded that torque, which is produced by an electric motor, is transmitted by a worm gear to the shaft.

在分析电梯驱动系统时,可以得出这样的结论:电动机产生的扭矩由蜗轮传递给轴。

➤ Reliability analysis in part design has been focused towards the electronic and digital disciplines since the emergence of reliability engineering in the late 1940's.

自从20世纪40年代后期可靠性工程出现以来,零件设计中的可靠性分析一直集中在电子和数字领域。

➤ The combination of these tire forces, which are essential for good curving performance of the monorail car, makes the dynamic motion of the monorail car complicated.

这些轮胎力的组合对于具有良好曲线通过性的单轨列车来说是必不可少的,这也使得单轨车的动力具有复杂性。

➢ The use of analysis/design software will complete the job and the selection of a bridge type for that situation will be automatic.

采用分析/设计软件可以完成该任务且根据具体情况自动进行桥型选择。

➢ The increase in passenger traffic will result in greater tourism and economic activity on the Tibetan Plateau.

旅客流量的增加给西藏高原的旅游业和当地经济带来了繁荣。

➢ Four wheel independently-actuated (4WIA) electric vehicle is a promising vehicle due to its potentials in emissions and fuel consumption reductions.

四轮独立驱动电动车在降低排放和燃油消耗方面具有巨大的潜力,是一种很有发展前景的汽车。

➢ With the development of science and technology, the automatic transmission (AT) technology is broadly used on vehicles, especially on passenger vehicles for its advantages of convenience of manipulate, relieving drivers' tiredness, improving the comfort and safety when driving, and reducing the pollution of exhaust emission.

随着科学技术的发展,自动变速器技术在汽车上得到广泛应用,特别是乘用车上。它具有操作方便等优点,可减缓驾驶员疲劳,提高驾驶的安全性和舒适性以及减少尾气排放污染的优势。

## 2. 广泛使用被动语态

在科技英语中被动语态使用频率较高,这是因为科技文章侧重叙事推理,强调客观准确,第一、二人称的过多使用会造成主观臆断的印象,因此应尽量使用第三人称叙述。另外,科技文章将主要信息前置,放在主语部分,这也是广泛使用被动态的主要原因。

试比较下面分别采用主动语态和被动语态表达的同义句子:

➢ We can store electrical energy in two metal plates separated by an insulating medium. We call such a device a capacitor, or a condenser, and its ability to store electrical energy capacitance. We measure capacitance in farads.

我们可将电能储存在由一绝缘介质隔开的两块金属极板内。我们称这样的装置为电容器,称其储存电能的能力为电容。我们用法拉为单位来测量电容。

➢ Electrical energy can be stored in two metal plates separated by an insulating medium. Such a device is called a capacitor, or a condenser, and its ability to store electrical energy is termed capacitance. It is measured in farads.

电能可储存在由一绝缘介质隔开的两块金属极板内。这样的装置称为电容器,其储存电能的能力为电容。电容的测量单位是法拉。

第二段话,虽然主语可以是人,如"we"等,但绝大多数情况都避免使用类似的人称主语,因为动作的发出者是不言而喻的,或是不受关注的对象,而动作本身是强调的对象,因此采用被动语态形式是最合适的。

这一段短文中各句的主语分别为:

Electrical energy; Such a device; Its ability to store electrical energy; It (Capacitance)

它们都包含了较多的信息,并且处于句首的位置,非常醒目。四个主语完全不同,避免了单调重复,使其前后连贯,自然流畅,足见被动结构可达到简洁客观的效果。

> The dynamic characteristics of the drive axle was analyzed through building the vehicle dynamics simulation model in virtual software.

在虚拟的软件中建立车辆动力仿真模型分析驱动桥的动态特性。

> Suspension, cable-stayed, and through-truss bridges are included in this category of main structure above the deck line.

悬索桥、斜拉桥和下承式桥梁都属于主结构在甲板线上方这一大类桥型。

> The arch form is intended to reduce bending moments in the superstructure.

(拱桥的)拱形是为了降低上部结构的弯矩。

> Alternatively, dynamic numerical models have been extensively used due to the recent advancement made in the computer technology.

另外,由于近来计算机技术的进步,动态数字模型已得到广泛使用。

> Road construction is often begun with the removal of vegetation and followed by the laying of pavement material.

通常,筑路的开始阶段是清除植被,然后铺设路面材料。

> Despite significant improvements in fuel and engine technology, the urban environments are mostly dominated by traffic emissions.

尽管燃料(的利用率)和发动机技术已经有了很大的改进,但城市环境污染问题主要还是受到机动车尾气排放的影响。

## 3. 常采用动词非谓语结构(非限定动词)

如前所述,科技文章要求行文简练、结构紧凑,而英语每个简单句(或复合句的分句)中只能有一个谓语动词,如果需要叙述几个动作,先选其中主要动作当谓语,而将其余动作用非谓语动词形式,才能符合英语语法要求。为此,往往使用**分词短语代替定语从句或状语从句**、使用**分词独立结构代替状语从句或并列分句**、使用**不定式短语代替各种从句**、使用**介词 + 动名词短语代替定语从句或状语从句**,这样可以缩短句子,又比较醒目。

汉语中则不存在这种结构,所以翻译时可酌情处理,或译成汉语动宾结构,或另起一句翻译。

试比较下列各组句子:

> A direct current is a current which flows always in the same direction.

A direct current is a current flowing always in the same direction.

直流电是一种总是沿同一方向流动的电流。

> Heat causes air currents to rise when it is radiating from the earth.

Radiating from the earth, heat causes air currents to rise.

热量由地球辐射出来时,使得气流上升。

➤ A body can move uniformly and in a straight line if there is no cause to change that motion.

A body can move uniformly and in a straight line, there being no cause to change that motion.

如果没有改变物体运动的因素,那么物体将做匀速直线运动。

➤ Vibrating objects produce sound waves and each vibration produces one sound wave.

Vibrating objects produce sound waves, each vibration producing one sound wave.

振动着的物体产生声波,每一次振动产生一个声波。

## 1)分词短语

➤ The transport of goods in and out of Tibet was mostly through the Qingzang Highway connecting the Tibet to the adjacent Qinghai province.

进出西藏的货物运输主要通过青藏铁路,该铁路将西藏与相邻的青海省相连。

➤ On the Internet itself there are lots of passionate non-commercial discussion groups on topics ranging from Hungarian politics to copyright law.

互联网上就有很多热闹的非商业讨论群,它们讨论的主题从匈牙利政治到版权法,应有尽有。

➤ Pushing their way through emerging cities like Barakar, India, automobiles carry unwanted cargo—$CO_2$ emissions.

汽车挤进像印度巴拉卡那样的新兴城市时,带来了不受欢迎的"货物"(污染物)——二氧化碳的排放。

➤ Comparing the actual performance with that anticipated in the design, we may do this by installing special instruments that measure movements, groundwater levels, and other important characteristics.

为了对比实际的(岩土)性能与设计预期的性能,我们可以安装特殊仪器来测量位移量、地下水位以及其他重要特征。

➤ Based on a first order method, the sensitivity of the failure probability with respect to the random input quantities is evaluated.

基于一阶矩法,对随机输入量的失效概率敏感性进行评价。

➤ The life safety requirements are more rigorous due to the greater number of people transported.

由于乘客通行量大,安全标准更严格。

➤ Compared with pure mechanism transmission, AT has the disadvantage of low transmission efficiency.

与纯机械变速器相比,自动变速器(AT = automatic transmission)具有传动效率低的缺点。

➤ The method of tunnel construction is determined based on such factors as the ground conditions, the ground water conditions, the length and diameter of the tunnel drive and the depth of the tunnel to be constructed.

隧道施工工艺的选择必须考虑诸多因素,包括地质条件、地下水状况、隧道开挖的长度和

直径以及拟建隧道的埋深。

➤ Assuming optimal solutions are not unique, we consider two optimal trajectories shown in Fig. 4, both of which satisfy all necessary conditions and the boundary condition of PMP.

假设最优解并不唯一，我们要考虑由图 4 所示的两条最优轨迹，它们都满足了 PMP 算法的全部必要条件和边界条件。

➤ For building frame with a regular outline, not involving unusual asymmetry of loading, the influence of sideway caused by vertical loads can be neglected.

对于有规则轮廓、无异常不对称荷载的建筑结构而言，竖向荷载的附加影响可忽略不计。

➤ The basic mechanism causing earthquakes in the plate boundary regions appears to be that the continuing deformation of the crustal structure eventually leads to stresses which exceed the material strength.

在板块边界区引起地震的基本机理似乎是地壳结构的持续变形最终导致应力超过材料强度。

## 2) 分词独立结构

➤ Both the first reason and the second considered, you will draw the conclusion that the differentials allow a perfect split of the motor and IC engine on each wheel.

考虑到第一、二个原因，会得出这样的结论：分速器使得电动机和内燃机能对每个车轮的驱动做很好的切换。( differential , 齿轮转动装置、分速器；IC = internal combustion，内燃机)

➤ Structural elements ( parameters) connecting the disc and the ring represent the behavior of the sidewalls of the inflated tyre, those connecting the ring and the plate representing the effects of the local deformation of the belts near the contact area when a vertical load is applied.

连接盘与环的结构单元(参数)体现了充气轮胎的侧面的性能，而连接环和面的单元，则表现了当施加垂向载荷时靠近接触域的帘线的局部变形效应。

➤ Almost all metals are good conductors, silver being the best of all.

几乎所有的金属都是良导体，而银则是其中最好的。

➤ When people driving at night, pedestrians in images of a far infrared camera present very pronounced edges.

夜间驾驶，行人在红外线相机中显现出的图像边界非常明显。

➤ Corruption prevailing in many developing countries, some observers are suspicious that the money will actually reach the people it is intended for.

发展中国家贪污盛行，一些观察家怀疑这些钱能否到达应该得到它的那些人手里。

➤ An electron is about as large as nucleus, its diameter being about $10^{-12}$ cm.

电子与原子核的大小大致相同，其直径大约为 $10^{-12}$ 厘米。

➤ This current changing, the magnetic field will change as well.

电流变化时，磁场也将发生变化。

➤ The sign of the integral depends on the direction of the path taken, a counter-clockwise direction being taken as positive.

积分的符号取决于所取路径的方向,我们把反时针方向取为正。

> There are several basic laws governing these interactions, <u>all of them discovered early in the nineteenth century</u>.

支配这些相互作用的基本定律都是在 19 世纪发现的。

## 3)不定式短语

> <u>To brainstorm</u> and develop approaches that simultaneously reached technical, cost and schedule to the minimum, design and construction personnel participated in constructability and risk reduction reviews.

为了提出和制定同时满足技术水平、成本及尽可能缩短工期的方法,设计和施工人员参与了可施工性和减少风险的评估。

> Kim et al. (1996) developed a logistic model and used it <u>to explain</u> the likelihood of motorists being at fault in collisions with cyclists.

Kim 等人开发了一种逻辑斯蒂(回归)模型用来解释机动车驾驶人不小心与骑车人发生碰撞的概率。

> <u>To get</u> the optimal costate variable over the whole driving cycle, the variation of externals with multiple shooting methods is used in our study.

为了得到整个驱动循环中的最优共态变量,在研究中我们采用了"多重射击"方法的外界变量。

> As one of the bottleneck problems, the problem of reverse driving must to be solved <u>to improve</u> the whole performance of the machines, especially for those with high speed.

反向驱动作为瓶颈问题必须被攻克,从而提高机器的整个性能,尤其是高速运行的机械。

> The design build team was able to establish basic design parameters <u>to concurrently complete</u> the final design.

设计施工团队能设定基本设计参数以便同时完成最后的设计。

> The success of the management approach is mostly visibly demonstrated in the ability of the project <u>to retain</u> within budget.

项目管理方法的成功与否大部分明确地体现在预算内完成项目的能力。

> The regional flood protection system had been designed <u>to safely withstand</u> the storm surges and waves associated with a scenario roughly "typical" of a category 3 hurricane passing close to the New Orleans region.

设计出的地区防洪系统可安全地抵抗经过新奥尔良地区的 3 类台风带来的涌浪和波浪。

> Safe disposal of all human wastes is necessary <u>to protect</u> the health of the individual, the family, and the community, and also <u>to prevent</u> the occurrence of certain nuisance.

为了保护个人、家人和社区居民的健康,防止某些公害的产生,安全地处理所有垃圾是十分必要的。

> Two main strategies have been developed <u>to reconcile</u> these seemingly opposing interests: heat recovery and demand control ventilation.

为了协调热回收和通风控制需求这两个看似对立的方面,我们研发了两个重要策略。

➤ These systems use open spaces, called plenums between the concrete slab and raised access floor to supply conditioned air.

这些(通风)系统使用混凝土面和高架通道地板之间的开放空间(充气室)去提供调节的空气。

➤ This raised water level can cause damage by flooding and it allows waves to attack the coast and further inland.

水位升高能导致洪水灾害,使波浪袭击海岸及内陆地区。

## 4)介词+动名词短语

➤ Likewise, disposal of solid waste by incinerating results in air pollution, which in turn is controlled by scrubbing with water, resulting in water pollution problem.

同样的,采取焚烧的方法处理固体垃圾导致空气污染,进而用水进行冲洗导致水污染问题。

➤ These criteria can best be met by discharging domestic sewage to an adequate public or community sewerage system.

生活污水排入公共的或者社区的污水处理系统能最好地满足这些标准。

➤ The goal is to improve vehicle dynamics, by suppressing resonances and enlarging the bandwidth for the yaw rate tracking dynamics so that the driver effort is reduced, and to improve stability.

通过抑制共振和扩大偏航率跟踪动态的带宽能达到改善车辆动力的目的,驾驶员省力,行驶稳定性也得到提高。

➤ In conclusion, the effect of change in radius of curvature on stress distribution is explained by using FEM and precautions which have to be taken to prevent a similar failure is clarified.

总之,我们利用有限元法(FEM = Finite Element Method)分析了曲率半径变化对应力分布的影响,也阐明了防止类似的失效再次发生所需采取的防范措施。

➤ Algorithm for deriving the equation of motion for the curving simulation was devised by using a multi-body dynamics method taking account of the forced input from the guideway to the truck though the tires.

采用了多体运动学方法设计了提取曲线仿真运动方程的算法,同时考虑了通过轮胎从导轨传入转向架的强制输入。

➤ At last, the ability of the controller to improve vehicle handling is evaluated by using a quite detailed (commercial) vehicle simulator.

最后,使用一个比较精细(商业)的汽车驾驶模拟器,评估了控制器提高车辆操纵性的能力。

➤ The lower-level controller allocates the required control efforts to the four in-wheel motors for generating the desired tire forces.

低层控制器将所需的控制力分配到四个轮毂电机来产生所需的驱动力。

➤ Because the infills in an infilled frame structure serve also as external walls or internal parti-