

Документ подписан простой электронной подписью

Информация о владельце:

ФИО: Ильшат Ринатович Мухаметзянов

Должность: директор

Дата подписания: 13.07.2023 14:34:25

Уникальный идентификатор:

aba80b84033c9ef196388e9ea0434f90a87a40954ba279e84bche64f02d1d8d0

**МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ
РОССИЙСКОЙ ФЕДЕРАЦИИ**

**федеральное государственное бюджетное образовательное учреждение высшего
образования «Казанский национальный исследовательский технический**

университет им. А.Н. Туполева-КАИ»

(КНИТУ-КАИ)

Чистопольский филиал «Восток»

МЕТОДИЧЕСКИЕ УКАЗАНИЯ К ПРАКТИЧЕСКИМ ЗАНЯТИЯМ
по дисциплине
СПЕЦИАЛЬНЫЙ АНГЛИЙСКИЙ ЯЗЫК

Индекс по учебному плану: **ФТД.В.01**

Направление подготовки: **12.03.01 Приборостроение**

Квалификация: **Бакалавр**

Профиль подготовки: **Приборостроение**

Типы задач профессиональной деятельности: **проектно-конструкторская,
производственно-технологическая**

Рекомендовано УМК ЧФ КНИТУ-КАИ

Чистополь 2023 г.

Тема 1 Superconductivity: discovery, developments, application. Infinitive Constructions.

Сверхпроводимость: открытие, разработка, применение. Сверхпроводящая керамика. Список выражений, рекомендуемых для написания реферата и аннотации. Грамматика: Конструкции «сложное дополнение и сложное подлежащее с инфинитивом», особенности перевода.

На практических занятиях разбирается грамматическая тема сложных инфинитивных конструкций и вводится новая лексика по теме сверхпроводимости. В дальнейшем лексика и грамматика отрабатываются в текстах и упражнениях по учебнику Орловской И.В. (Lesson 11) и учебному пособию «Аннотирование и реферирование текста». Далее разбираются выражения для составления реферата, определяется, как составлять монореферат на английском языке, а так же рассматривается пример реферата из пособия.

Complex Object with the Infinitive – Сложное дополнение с инфинитивом

It consists of two elements:

1 – a noun or a pronoun; 2 – infinitive

1. After verbs of sense perception (hear, see, watch, feel, notice, observe) bare infinitive is used without “to”.

1 2

I watched the boy play. – Я смотрел, как мальчик играл.

1 2

I felt him touch me. – Я чувствовала, как он прикоснулся ко мне.

2. After verbs of mental activity (understand, know, realize, think, believe, suppose, consider, expect, find)

Everybody considers **her to be** clever. – Все считают её умной.

They expected **me to arrive** on Monday. – Они ожидали, что я приеду в понедельник.

3. After verbs expressing feelings and emotions (like, dislike, hate, love, want, wish, prefer, intent, desire)

I hate **him to grumble**. Терпеть не могу, когда он ворчит.

I'd like **her to arrive**. – Я бы хотела, чтобы она приехала.

4. After verbs of compulsion (cause - вынуждать, bare, stand – выносить)

Her last words caused **him to change** his mind. – Её последние слова заставили его передумать. I can't bare **him (to) smoke**. – Не выношу, когда он курит.

5. After verbs (make – заставлять, have – допускать, get – добиваться, let - позволять) – bare infinitive is used.

I will not have **you talk** to her in such a way. – Я не допущу, чтоб ты с ней так разговаривал.

We shall **get you** do everything in time. – Мы добьемся, чтобы ты все делал вовремя.

6. After verbs of order and permission (let, allow, order, make, force)

She allowed him to be here tonight. – Она позволила ему здесь быть сегодня вечером.

7. Verbs of speech (say, report, declare, tell)

They reported the girl to be the winner. – Они сообщили, что девочка стала победительницей.

Complex Subject with the Infinitive

It consists of two elements. The verbs are mainly used in **Passive Voice**.

1. With the verbs of sense perception (Глаголы чувственного восприятия).

The girl was seen **to cross** the street. – Видели, как девочка переходила улицу.

2. With the verbs of mental activity – (Глаголами умственной деятельности).

You are supposed **to have done** the exercises. – Предполагается, что вы выполнили упражнения.

You are supposed **to go** there. – Предполагается, что вы пойдете туда.

3. With the verbs of order, request, permission (make, let, order, force, allow)

I was made **to sweep** the floor. – Меня заставили подмести пол.

4. With the verbs of speech

She was reported **to be** the winner.– Сoбoщили, что она - пoбeдитeль.

to be likely	пoxожe, вepoятнo, нaвepнякa
to be sure	нaвepнякa, cкopee вceгo
to be certain	

She is likely **to return** soon.– Bepoятнo, она cкopo вepнeтcя.

We are sure **to leave** in a minute.– Cкopee вceгo, мы чepeз минyтy yйдeм.

5. With the verbs to seem, to happen, to appear, to chance, to prove, to turn out

She seems to have seen this film.– Oкaзывaeтcя, она видeлa этoт фильм.

Grammar exercises:

Ex. 1 Translate the sentences with Complex Object.

1. He wanted us to visit the art exhibition.
2. I expect you to tell me everything.
3. I suppose her to be about 50.
4. The teacher does not consider him to be a good student.
5. The engineer expected the work to be done in time.
6. We expect you to show good results.
7. We know him to have graduated from the Institute two years ago.
8. Everybody knows him to be working on a new book.
9. We believe cybernetics to be an important branch of modern technology.
10. We thought him to have taken part in their experiment.
11. She felt somebody touch her.
12. We heard him come in and close the door behind him.
13. Have you ever seen Ulanova dance?
14. She watched the boy buy a newspaper, open it, look it through and then throw it away.
15. I heard him mention my sister's name.
16. Many people like to watch the sun rise.
17. She saw her son fall and shouted.
18. He likes watching his son play in the garden.
19. The students heard the bell ring.
20. You can't make me believe that all these stories are true.
21. In spite of bad weather the instructor made the sportsmen continue their training.

Ex. 2. Translate the sentences with Complex Subject

1. The lecture was said to be very interesting.

The members of the committee are reported to come to an agreement.

The English delegation is believed to come at the end of the month.

She seems to know English and French.

He proved to be a good teacher.

This school is considered to be the best in the town.

The weather appears to be improving.

The doctor happened to be there at the time of the accident.

She seems to be waiting for you.

10. Lake Baikal is said to be the deepest in the world.

11. This picture proved to be the best at the exhibition.

12. These two scientists happened to work on the same problem.

Ex. 3 Translate the sentences with Infinitive Constructions.

A lot of people came to watch the ocean liner return home after a long voyage.

Everybody thought him to be quite a reliable person.

The captain declared the load to be too much for his small boat.

He seems to know a great deal about the history of navigation.

The boat, though very small, proved to be quite reliable.

The 20th century is considered to be the century of space travels.

The motor proved to be quite efficient.

Atomic ice-breakers are known to operate on a negligible quantity of atomic fuel.

The results of the test were found to be very interesting.

10. I know them to be working on the problem of protecting the cosmonauts from the effect of sun radiation.

11. Rubber is known to have been brought from America.

12. Ink is supposed to have been invented in Egypt.

13. We expected him to be appointed director of a new automobile plant.

14. This question appears to be of great importance.

15. The plan proved to be a great success.

16. The travellers found the people of the small island (to be) very friendly.

17. They reported the capacity of the new engine to have been increased.

18. The owner of the motor car wanted the old engine to be replaced.

Как составляется реферат и аннотация

Текст

A History of Superconductivity

Heike Kamerlingh Onnes discovered superconductivity in 1911 when he used liquid helium as a coolant to study the electrical properties of metals at low temperatures. To everyone's surprise, when mercury was cooled to about 4.2 kelvins, it suddenly lost all electrical resistance. This threshold is known as the critical temperature, or T_c .

Other materials having ever higher critical temperatures were discovered slowly but surely during the first five decades of superconductivity research. All these superconductors were either pure metallic elements or intermetallic compounds (made of two or more metallic elements). But from the 1960s through the mid-1980s the maximum value of T_c seemed to be stuck in the low 20s.

All this changed in 1986 with the discovery of high-temperature superconductivity in a slew of copper oxide-based compounds. During the first few years after this discovery, T_c values shot up, with mercury-barium-calcium-copper-oxide having a T_c of about 130 K. This was a fantastically exciting time, but it soon became clear that the leading theory of how superconductivity arises-known as BCS theory - does not explain the absence of resistance in these materials. Despite almost 20 years' worth of effort, there is still no definitive theory of how or why the copper oxide compounds superconduct.

These compounds also pose a multitude of physical challenges. Initially they were hard to make in either high-purity or single-crystal form, making the measurements of their fundamental properties difficult. In addition, the synthesis of wires is not easy: unlike the intermetallic superconductors, the individual grains that make up a piece of one of these oxides have to be aligned with respect to one another for the wire to have useful engineering properties. These problems left researchers and engineers wishing for a substance with the somewhat easier material properties of the intermetallic superconductors that also had a critical temperature significantly higher than 20 K.

By the dawn of the new millennium, then, the superconducting state could be achieved with varying degrees of ease and expense. In the oxides, superconductivity was practical near 77 K, which can be reached relatively easily by bathing the material in liquid nitrogen. The older intermetallic compounds such as triniobium tin were being used in the laboratory and as medical magnets operating at temperatures closer to 4 K, which can be reached with liquid helium.

The discovery in 2001 that the simple intermetallic compound magnesium diboride superconducts at 40 K, about double the temperature of the other intermetallics, was almost exactly what the doctor (or in this case, engineers) had ordered.

Notes to the text:

Coolant – охладитель, охлаждающее вещество

Properties – свойства

Mercury – ртуть

Slowly but surely – медленно, но верно

Seemed to be stuck – казалось застыла

Slew – множество, масса

BCS theory – (авторы теории, объясняющей механизм сверхпроводимости в металлах John Bardeen, Leon N. Cooper, J. Robert Schrieffer)

Challenges – вызов, проблема

Pose – ставить

Measurements – измерения, размеры

Degrees – степени, градусы

Перевод текста

История сверхпроводимости

Хейк Камерлинг Оннес открыл сверхпроводимость в 1911 году, когда использовал жидкий гелий в качестве охладителя, чтобы изучить электрические свойства металлов при низких температурах. Ко всеобщему удивлению, когда ртуть была охлаждена приблизительно до 4.2 кельвина, она внезапно потеряла электрическое сопротивление. Этот порог известен в качестве критической температуры или T_C .

Другие материалы, имеющие еще более высокую критическую температуру, обнаруживали медленно, но верно в течении первых пятидесятилетии лет исследования сверхпроводимости. Все эти сверхпроводники были либо чистыми металлами, либо соединениями металлов – интерметаллидами (состоящими из двух и более металлических элементов). Но в период с 1960-х до 1980-х г.г. казалось, что максимальное значение T_C застыло в пределах 20 кельвинов.

Все изменилось в 1986 году с открытием высокотемпературной проводимости у многих соединений на основе оксида меди. В течении нескольких лет максимальная критическая температура подскочила, причем T_C сложных оксидов на основе ртути, бария, кальция и меди составила почти 130 К. Это было удивительное волнующее время, но вскоре стало ясно, что ставшая традиционной теория происхождения сверхпроводимости, известная как теория BCS не в состоянии объяснить отсутствие удельного сопротивления в этих материалах. Несмотря на 20-ти летние исследования, все еще нет четкой теории, объясняющей, как и почему сложные оксиды на основе меди становятся сверхпроводящими.

Кроме того, эти соединения ставят перед учеными множество физических проблем. В начале их трудно было получить в чистом виде или в форме монокристалла, что затрудняло измерение их физических свойств. Кроме того, из них непросто получить провода, так как в отличие от интерметаллидных сверхпроводников, отдельные зерна, из которых состоит один из этих оксидов, необходимо сориентировать в одном направлении так, чтобы провод приобрел нужные технические свойства. Эти проблемы заставили ученых и инженеров искать вещество с более простыми физическими свойствами интерметаллидных полупроводников, которые так же имели бы критическую температуру выше 20 К.

К началу нового тысячелетия сверхпроводимость стали получать сравнительно простыми и дешевыми способами. В оксидах сверхпроводимости достигали при температуре около 77 К, чего можно было добиться сравнительно легко, погрузив материал в жидкий азот.

Ранее полученные интерметаллические соединения, такие как Nb_3Sn применялись в лабораториях в качестве медицинских магнитов, которые работали при температурах, близких к 4 К, которые можно получить с помощью жидкого гелия.

Сделанное в 2001 году открытие о том, что простое интерметаллическое соединение диборид магния становится сверхпроводником при 40 К (почти в 2 раза выше критической температуры других интерметаллидов) оказалось именно тем, что искали инженеры.

Пример аннотации на русском языке

Аннотация

“A History of Superconductivity”. Paul C. Canfield and Sergey L. Bud’ko. Scientific American April 2005, P.14.

Вкратце описывается история явления сверхпроводимости и стадии исследования этого явления. Обращается внимание на проблемы в объяснении принципов этого явления и попытки получить сверхпроводники при более высоких температурах.

Пример аннотации на английском языке

Annotation

“A History of Superconductivity”. Paul C. Canfield and Sergey L. Bud’ko. Scientific American April 2005, P.14.

The history of superconductivity phenomenon and the stages of its investigation are described in short. Attention is drawn to the problems in this phenomenon principles explanation and attempts to get superconductors at higher temperatures.

Пример реферата на русском языке

Реферат

Название текста, который я прочитал(а) «История сверхпроводимости». Авторами текста являются физик и, работающие в лаборатории департамента энергии города Эймс, штат Айова Пол Канфилд и Сергей Будько. Он был опубликован в журнале Scientific American в апреле 2005 года.

Статья посвящена явлению сверхпроводимости и попыткам ученых и инженеров повысить температуру получения сверхпроводников.

Цель статьи – дать читателю информацию о некоторых стадиях изучения сверхпроводимости и ее применении в некоторых сферах нашей жизни.

Автор начинает, рассказывая читателям, что в 1911 году датский физик Хейк Камерлинг Оннес открыл сверхпроводимость, когда обнаружил, что ртуть теряет электрическое сопротивление при охлаждении до температуры около 4,2 кельвина. Автор утверждает, что на протяжении первых пяти десятилетий исследования сверхпроводимости медленно но верно была обнаружена еще более высокая критическая температура.

Согласно статье с 1960-х и до середины 1980-х казалось, что значение критической температуры застыло на 20 градусах кельвина. Но все изменилось в 1986 году с открытием высокотемпературной проводимости у многих соединений на основе оксида меди.

Статья продолжается, рассказывая, что хотя это было волнующее время, господствовавшая тогда теория сверхпроводимости не объясняла отсутствия сопротивления в этих материалах.

Далее автор рассказывает нам, что с соединениями на основе оксида меди возникает немало проблем. Их трудно получить в чистом виде или в форме монокристалла, а так же изготовить из них провода. Это заставило ученых искать другие вещества.

Автор приходит к заключению, что к началу нового тысячелетия состояние сверхпроводимости получали сравнительно просто и дешево.

По моему мнению, данный текст информативный и современный, однако довольно труден для понимания.

Пример реферата на английском языке

Abstract

The head-line of the text I have read is “A History of Superconductivity”. The authors of the text are physicists, who work at the Department of Energy’s Ames Laboratory in Iowa, Paul C. Canfield and Sergey L. Bud’ko. It was published in magazine Scientific American in April 2005.

The article is devoted to the phenomenon of superconductivity and the attempts of scientists and engineers to raise the temperature of getting superconductors.

The purpose of the article is to give the readers some information on some stages of superconductivity research and its application in some spheres of our life.

The author starts by telling the readers that in 1911 Dutch physicist Heike Kamerlingh Onnce discovered superconductivity when he found out that mercury lost all electrical resistance being cooled to about 4.2 kelvins (K). The writer states that during first five decades of superconductivity research even higher critical temperatures were discovered slowly but surely.

According to the article from the 1960s through the mid – 1980s the maximum value of T_c seemed to be stuck in the low 20s. But all this changed in 1986 with the discovery of high-temperature superconductivity in a slew of copper oxide-based compounds.

The article goes on to say that though it was an exciting time, the leading BCS theory didn't explain the absence of resistance in these materials.

Further the author tells us that there are plenty of problems with copper oxide compounds. They are hard to make in either high-purity or single crystal form. Besides the production of wires is not easy. This made scientists look for other substances.

The author comes to the conclusion that by the dawn of the new millennium the superconducting state could be achieved with varying degrees of ease and expense.

In my opinion the text is informative and up-to-date, but rather hard to understand.

Тема 2 International Space Station. Strange New World. Subjunctive Mood.

Международная космическая станция. Космический шатл. Новости из космоса. Загадочный новый мир. Определение главной идеи текстов. Отработка лексики в упражнениях. Составление образца реферата и аннотации. Грамматика: Сослагательное наклонение

На практических занятиях разбирается грамматическая тема сослагательное наклонение и вводится новая лексика по теме космических исследований. В дальнейшем лексика и грамматика отрабатываются в текстах и упражнениях по учебнику Орловской И.В. (Lesson 12) и учебному пособию «Аннотирование и реферирование текста». После изучения текстов составляется реферат и аннотация по одному из текстов или по нескольким.

Сослагательное наклонение (The Subjunctive Mood)

Сослагательное наклонение показывает, что говорящий рассматривает действие не как реальный факт, а как предполагаемое, желательное или нереальное.

В русском языке имеется только одна форма сослагательного наклонения – сочетание формы глагола прошедшего времени с частицей бы (сделал бы, хотел бы и т.д.) Эта форма может относиться к настоящему, прошедшему или будущему времени.

В английском языке имеется несколько форм сослагательного наклонения.

При выражении предположения, желания или возможности в настоящем или будущем времени простые формы сослагательного наклонения совпадают с формой инфинитива без частицы to для всех лиц и чисел (live, try) или с формой Past Simple (finished, broke). Глагол to be в этом случае имеет формы be и were для всех лиц и чисел.

Сложная форма сослагательного наклонения представляет собой сочетание should (would), could, might с Simple Infinitive без частицы to:

Long live the King!

Да здравствует король!

It is high time he *were* here.

Давно пора ему быть здесь.

They *could take* this exam.

Они могли бы сдать этот экзамен.

I *should come* with pleasure.

Я бы пришел с удовольствием.

При передаче действия нереального, относящегося к прошлому, простая форма сослагательного наклонения совпадает с формой Past Perfect (had + V₃), а сложная форма представляет собой сочетание глаголов should, would, could, и might с Perfect Infinitive без частицы to:

They had taken the text-books, but the library was closed then.

Они взяли бы учебники, но библиотека была тогда закрыта.

We should have come.

Мы бы пришли.

Употребление различных форм сослагательного наклонения

I should like to get this book.
 He would like to join us.
 He could do it tomorrow.
 They would have helped you, but they couldn't come.
 You could have done it. Why didn't you try?

Мне бы хотелось получить эту книгу.
 Он бы хотел к нам присоединиться.
 Он мог бы сделать это завтра.
 Они бы помогли вам, но не смогли прийти.
 Ты мог бы это сделать. Почему ты не попытался?

Формы сослагательного наклонения употребляются:

1) в простых предложениях

Мне бы хотелось достать эту книгу.

Он хотел бы присоединиться к нам.

Он смог бы сделать это завтра. Они бы помогли вам, но не смогли прийти.

Вы могли бы это сделать, почему же вы не попытались?

2) в сложноподчиненных предложениях:

a) в придаточных предложениях после безличных оборотов типа:

It is	necessary ordered important essential desirable possible improbable suggested proposed required demanded	that	Необходимо, чтобы... Необходимо, чтобы... Важно, чтобы... Существенно, чтобы... Желательно, чтобы... Возможно, что... Маловероятно, что... Предполагается, что... Предполагается, чтобы... Требуется, чтобы... Требуется, чтобы...
-------	--	------	--

В этом случае сложная форма сослагательного наклонения образуется с помощью **should** для всех лиц:

It is desirable that he should be present here.

Желательно, чтобы он присутствовал здесь.

b) в дополнительных придаточных предложениях после глаголов to suggest – предполагать, to propose – предлагать, to desire – желать, to require, to demand – требовать, to order – приказывать, to insist – настаивать и т. д.:

The engineer demanded that the test be (should be) repeated.

Инженер потребовал, чтобы испытание повторили.

c) в дополнительных придаточных предложениях после глагола **wish**:

I wish he were with us.

Мне жаль, что его с нами нет.

I wish you had brought your camera.

Мне жаль, что ты не принес свою камеру.

Я бы хотел, чтобы он нам все рассказал.

I wish he would tell us everything.

Мне бы хотелось, чтобы он пришел на вечер.

I wish he could come to the party.

Мне бы хотелось, чтобы вы более тщательно сделали это.

I wish you had done it more carefully.

d) в придаточных предложениях цели после союзов *so that, in order that* – так, чтобы; *lest* – чтобы не. В этом случае *should* употребляется для всех лиц:

Send him out of the room so that he should not hear what we talk about.

She put the letter away lest her husband should see it.

Отошли его из комнаты, чтобы он не слышал, о чем мы разговариваем.

Она убрала письмо, чтобы его не увидел муж.

e) в придаточных сравнения с союзами *as if / as though* – как будто, словно:

The house is so quite as if there were nobody in it.

В доме было так тихо, как будто в нем никого нет.

f) в определительных придаточных предложениях после *'it is time', 'it is high time'* – пора, самое время. В этом случае используется для глагола to be (were) и Past Simple остальных глаголов.

It's time we went home.

It's high time you were in bed.

Нам пора идти домой.

Вам давно пора спать.

g) в обеих частях сложноподчиненного предложения с условными придаточными второго и третьего типов:

If I were not so tired, I should go with you.

If they had a car, they would go to the country.

If he hadn't phoned her, she wouldn't have come.

Если бы я так не устал, я бы пошел с вами.

Если бы у них был автомобиль, они бы поехали за город.

Если бы он не позвонил ей, она бы не пришла.

Grammar exercises:

1. Translate the sentences:

1. He had never suggested that I should visit them.
2. Laura insisted that we should put the party off.
3. Con insisted that I be also present.
4. It was important that no sound should give warning of their approach.
5. It's absolutely essential that you shouldn't breathe a word.
6. It seemed necessary that his friends should be kept away from interfering with his work.
7. After lunch it was proposed that they should all go to the lake.
8. It was possible that her only feeling was one of hurt pride.
9. It was agreed that he should be the first to speak.
10. It's only natural that a mother should not wish to be parted from her children.
11. It was improbable that Bart should buy pictures.
12. It is advisable that she should have someone to look after her.

2. Translate the sentences into Russian:

1. When the plane touched down he began to look around lest he should miss her in the crowd.
2. She was overcome with fear lest I should let her down.
3. He feared lest his landlord should betray him to the Germans.
4. I had a feeling of terror lest he never should be able to play in public again.

5. They had made a date for the following Friday night and he feared lest she should not come.
6. It was agreed that he should start on his new job on Monday.
7. I wish you had a serious talk with Paula.
8. It's important that I myself should speak with your captain.
9. I feared lest I shouldn't get back in time.
10. I wish I never met you.
11. Tom insisted that we should stop playing and go home.
12. It's about time we heard from him.
13. It's important that children should be taught to know the right things from the very beginning.
14. I wish you thought of something else.
15. It's high time Bill were back home.
16. I wish you were serious.
17. I wish you stopped laughing.
18. Of course it was quite possible that Mrs. Lee should be badly ill.
19. I wish you hadn't caught that dreadful cold.
20. It's necessary that you should find a specialist who could deal with it.
21. The officer ordered that the bridge be destroyed at dawn.
22. They demanded that the doctor would tell them what was the matter.

3. Translate the sentences with 'as if' and 'as though'

1. He was throwing his things into a suitcase as if the place were on fire.
2. Mary is always saying she believes in her friend, and at the same time she always behaves as if he were her enemy.
3. Our life goes on as if nothing had happened.
4. Father sounded as if he would never agree to let me go on the trip.
5. He came over to the table and stood in front of it as though it were a lecturer.
6. Bernard sat in his chair looking as if he were going to be sick.
7. His head ached terribly. It felt as though something were beating inside it, trying to get out.
8. After traveling some distance the leather of the seats felt as if they might burst into flame.
9. Sinclair was breathing with difficulty, as though he had been running.

4. Translate the following into Russian after 'as if' or 'as though':

1. Her lips were parted as if she were out of breath.
2. Hugh laughed awkwardly, as if he had said something indecent.
3. Bateman felt as though someone had given him a violent blow.
4. She sounded as if she were talking to someone distasteful.
5. He couldn't move his legs as if they were stuck on the floor.
6. It sounds as though there were three or four men down there.
7. She spoke of this and that as though she were making conversation with a stranger.
8. He looked as if he had already decided on some action.
9. The sky looked as though it had been grey for months.
10. Her stillness and her strange words made me feel as if I were still dreaming.
11. Jones greeted me as though I were an old school-friend whom he had not seen for years.
12. Her eyes were sparkling as though she were laughing at us.
13. He looked as though he hadn't moved since I left him the previous night.

5. *Translate into Russian:*

1. What would have happened if you hadn't done so well yesterday?
2. If I were a playwright I'd write a nice, old-fashioned play in which the heroine is pure and beautiful and makes a man out of her husband.
3. I said I thought it would be far more fun if your brother had come, too.
4. If he knew, he would have told me. I'm sure he knows nothing.
5. It was so dark that he would have lost his way if she had not taken him by the hand.
6. "Do you think it's important?" "Yes, I do. If I didn't I wouldn't be here."

Тема 3 Mobile phones on the plane. Polar satellite freeze. Revision: verbals, passive, subjunctive

Мобильные телефоны на борту самолета. Задержка запуска полярного спутника. Намек на аксиомы. Составление реферата и аннотации по прочитанным статьям. Грамматика: повторение неличных форм глагола (причастие, герундий, инфинитив), страдательного залога. Основной акцент при проведении практического занятия делается на поиск ранее изученных грамматических явлений в рассматриваемых текстах. Обращается особое внимание на их перевод на русский язык. Работа ведется преимущественно по учебному пособию «Аннотирование и реферирование текста».

Примерный план работы над текстом:

- Определите основные вопросы, рассматриваемые в тексте.
- Отметьте абзацы, в которых содержится наиболее существенная информация текста.
- Найдите ключевые слова, передающие основную мысль абзаца.
- Найдите предложения, передающие наиболее значимую информацию текста.
- Найдите предложения в каждом абзаце, за счет которых можно этот абзац сократить.
- Сформулируйте главную мысль каждого абзаца.
- Составьте план полного изложения текста.
- Составьте краткую аннотацию и реферат к тексту.

Strange New World

Piercing the haze, Huygens gets a view of Titan's surface

By Mark Alpert (Scientific American, April 2005, P.11-12)

On January 14 a saucer-shaped spacecraft weighing 320 kilograms made the "splat" heard round the solar system. The successful landing of the Huygens probe on Titan, Saturn's large and mysterious satellite, delighted planetary scientists, who thrilled at the probe's images of icy ridges and dark, riverlike channels. In the following weeks, though, the euphoria turned to head-scratching as researchers struggled to decipher the data collected by the probe. Although the four-hour-long mission provided the first close look at Titan's surface and atmosphere, Huygens raised at least as many questions as it answered.

Despite the moon's extreme cold - its surface temperature is -180 degrees Celsius – Titan is similar to Earth in many ways. Like our planet, Titan has a thick atmosphere composed mainly of nitrogen. Another significant constituent is methane, which condenses at low temperatures and appears to play the same meteorological role on Titan as water does on Earth. Scientists had long speculated that Titan might have clouds of methane and lakes or seas of liquid hydrocarbons. To test this hypothesis, the European Space Agency built the Huygens probe, which for seven years journeyed to Saturn attached to NASA's Cassini orbiter. The two craft separated as they approached Titan, and

Cassini relayed Huygens's data to Earth after the probe parachuted through the satellite's haze, which had obscured previous attempts to observe the surface.

One of the mission's first surprises was that this haze extended so far down. Titan's main haze layer is at least 200 kilometers thick; the probe's view of the surface did not clear until Huygens was less than 20 kilometers above the ground. At that same altitude the onboard gas chromatograph and mass spectrometer detected an abrupt jump in the amount of methane in the atmosphere. Together the findings suggest the presence of methane clouds, with the droplets possibly condensing around the haze particles. (These hydrocarbon solids are believed to come from the breakdown of methane in Titan's upper atmosphere caused by the sun's ultraviolet radiation.)

Evidence of methane rainfall came from Huygens's images of the surface, which showed sinuous, branching channels extending from relatively bright highlands to a tarry plain. The contrasts in brightness suggest that precipitation may have washed dark hydrocarbon deposits off the icy highlands and into the channels. But some of the channels are short and stubby, leading scientists to speculate that liquid methane may also be flowing from underground springs.

The probe's landing, though, offered the strongest indications of liquid methane on Titan. As Huygens hit the surface at five meters per second, a device called a penetrometer – essentially a spring-loaded stick on the underside of the craft – measured the force of impact and found the ground's resistance to be like that of wet sand with a brittle crust. Three minutes after landing, Huygens detected a 30 percent rise in the abundance of methane; the heat of the probe's instruments had apparently vaporized the liquid hydrocarbon in the top few centimeters of Titanian soil.

Researchers will spend the next several months analyzing the data and devising theories to explain the observations. "Titan is living up to our expectations," says Jonathan I. Lunine, a University of Arizona scientist on the Cassini-Huygens team. "It's as interesting as we'd hoped it would be." Tobias C. Owen, an atmospheric scientist at the University of Hawaii's Institute for Astronomy, warns that theorists must be careful about generalizing the results from a single landing site; it may not be possible, for example, to estimate the frequency of methane rainfall on Titan or the total amount of liquid methane on the surface. But continuing observations by the Cassini orbiter, which scanned Titan's surface near the landing site in a flyby in February, may help investigators make sense of Huygens's remarkable findings.

Vocabulary:

Pierce – пронизывать

Haze – дымка, туман

Splat – звук всплеска/шлепка

Ridges – горная гряда, хребет

To decipher – расшифровать

Constituent – компонент, составная часть

To speculate – размышлять, думать

Orbiter – орбитальная станция

Sinuous – извилистый, волнистый

Tarry plain – черная равнина

Precipitation – осадки

Stubby – кряжистый

Brittle crust – хрупкая корка

Hydrocarbon – углеводород

To live up to – быть достойным чего-либо

Flyby – сближение с небесным телом для проведения наблюдений.

I. Answer the following questions to the text:

1. What happened on the 14th of January?
2. What is Titan?
3. Why did the scientist thrill?
4. What happened after the four-hour-long mission?
5. In what way is Titan similar to Earth?
6. Why did ESA build the Huydens probe?
7. How thick is Titan's main haze layer?
8. Where did the evidence of methane rainfall come from?
9. What were the indications of liquid methane on Titan?
10. How will the scientists spend the next several month?
11. What is the author's summary?

II. Translate the following sentence in written form.

1. Together the findings suggest the presence of methane clouds, with the droplets possibly condensing around the haze particles.

2. These hydrocarbon solids are believed to come from the breakdown of methane in Titan's upper atmosphere caused by the sun's ultraviolet radiation.

3. The two craft separated as they approached Titan, and Cassini relayed Huygens's data to Earth after the probe parachuted through the satellite's haze, which had obscured previous attempts to observe the surface.

4. As Huygens hit the surface at five meters per second, a device called a penetrometer – essentially a spring-loaded stick on the underside of the craft – measured the force of impact and found the ground's resistance to be like that of wet sand with a brittle crust.

III. Find English equivalents in the text.

Космический корабль в форме блюдца; эйфория сменилась недоумением; ученые давно полагали; толщиной, по крайней мере, 200 километров; возможно осадки вымыли залежи темного углеводорода; оправдывает наши ожидания; может помочь исследователям понять.

IV. Read the article and express the key ideas in 2-3 sentences.

V. Find in the text Passive voice, Infinitive constructions, Gerund and Participle.

VI. Make up the abstract and the annotation of the text.

Ex 1. Переведите на русский язык следующие предложения, содержащие субъектный инфинитивный оборот:

1. This region is expected to have extremely rich deposits of copper ore.
2. The special commission of the Russian Academy of Sciences is expected to conduct large-scale excavations works.

3. The delegation is reported to have visited some natural museums.
4. It seems that the deposits of minerals in this region are inexhaustible.
5. Copper wire is estimated to have a great tensile strength.
6. The new system of automatic control is likely to be used in the near future.
7. Industrial electronics is said to be a comparative newcomer to industrial plants.
8. Vacuum tubes appear to perform such functions as: rectification, amplification, detection, modulation and others.
9. The future is expected to bring a great many of new applications for semiconductors.
10. The average user of electrical devices is not likely to know anything about them because they are usually small, almost hidden, and seldom require servicing.
11. Isotopes are found to behave alike in all chemical reactions but to differ in mass.

Ex 2. Переведите на русский язык предложения, содержащие герундий:

1. Making this experiment took him much time and energy.
2. Perfecting some instruments the scientists learn more about sun's atmosphere.
3. Constructing simple radio-sets was followed by more complex devices.
4. Before installing the new equipment the engineers were to test its performance.
5. After having changed the design of the transmitter it can be employed in the aircraft.
6. Different methods of conveying signals were examined for this particular application.
7. The ionosphere property of bending radio waves and returning them to the ground was referred to in that text-book.
8. Scientists turned their attention to studying electrons instead of using ultraviolet light.
9. The idea of using machines for purposes of teaching is of great importance.
10. Because of its being applied in different branches of modern industry electronics is growing in importance from day to day.
11. Only by investigating the ultraviolet rays we shall be able to increase our knowledge of the stars.

Ex 3. Переведите на русский язык следующие предложения, содержащие страдательный залог:

1. Our country's successes in the construction of hydropower stations have been universally recognized.
2. The weight of the atom is almost entirely concentrated at its centre in the nucleus.
3. If a piece of material is struck by rays of light, electrons will leave the material.
4. The future of astronautics will be a logical continuation of what has already been achieved.
5. Two methods of reproducing sound have already been achieved.
6. Nearly all properties of matter are affected in some degree by temperature changes.
7. Automation is being introduced in building work.
8. The new block of flats was being built at the time of our holidays.
9. We were informed that many scientists were working at the problem of radioactivity.
10. Elimination of the housing shortage which is being realized at present is a problem of great importance.
11. More and more is being learned about outer space and conditions for life there.
12. Numerous new instruments are being used in many branches of science and technology.

Ex 4. Переведите на русский язык предложения, содержащие модальные глаголы:

1. A model of the proposed chamber may be made of the transparent plastics so that flow through the chamber can be observed or photographed.
2. Surging must be avoided when the aircraft is put into a dive.
3. An axial compressor cannot be run at too high speed.

4. We may say that a gas turbine engine comprises three main sections.
5. Changes in the shape of the chamber can really be made.
6. Blade vibration may become dangerous.
7. The thrust can be varied by the pilot.
8. Conditions must be studied to find the best fuel.
9. The method described above also enables us to obtain a better value for a friction constant.
10. The rocket is able to travel in a vacuum even better than it can through the air.
11. The speed has to be reduced.
12. The spaceship has to overcome the gravity.