

An Short Introduction To The Nuclear Science

Zheng Jiarong

August 3, 2006

Events

- 道尔顿提出分子假说

Events

Big Figures

Nuclear Weapon

Modern application
of Nuclear Science

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- 道尔顿提出分子假说
- 卢瑟福提出原子核模型

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- 道尔顿提出分子假说
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- 查德威克发现中子

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- 哈恩发现核裂变现象

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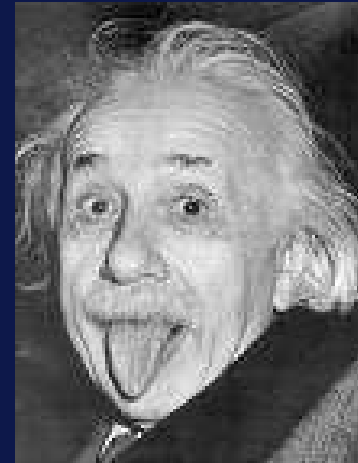
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潘多拉的盒子是如何被打开的



Big Figures

Einstein



Events

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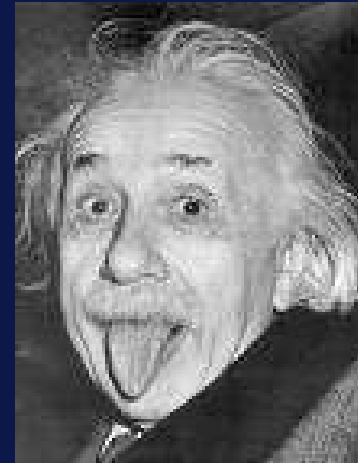
Einstein

Oppenheimer

Nuclear Weapon

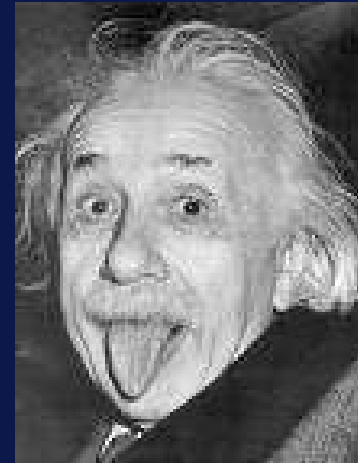
Modern application
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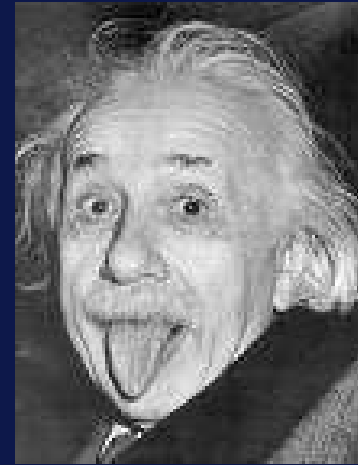
■ 狭义相对论

Einstein



- 狭义相对论
- $E = mc^2$

Einstein



- 狭义相对论
- $E = mc^2$
- 奠定人类利用核能的理论基础

Oppenheimer

原子弹之父 奥本海默

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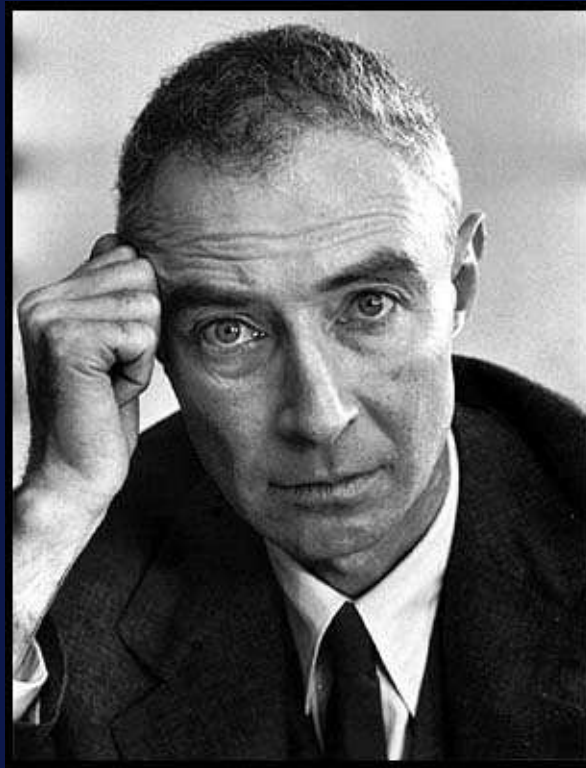
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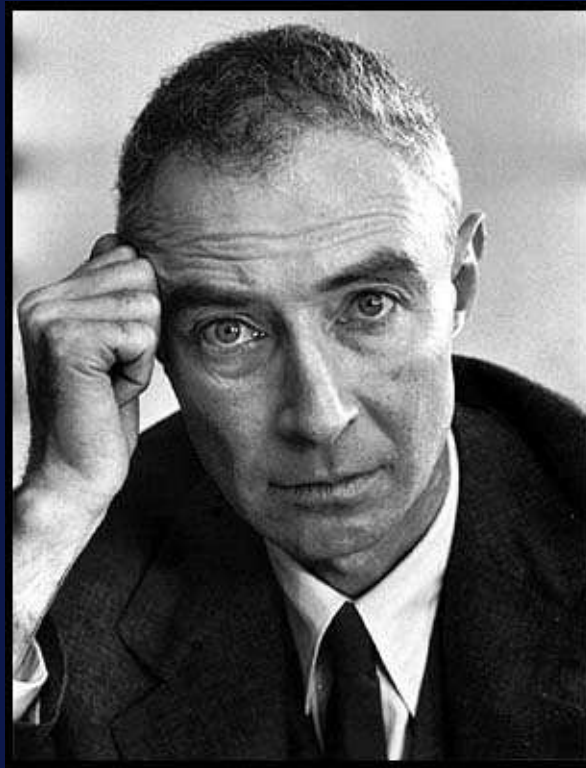
Big Figures

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Nuclear Weapon

Nuclear fission
letter

6.August 1945

15.August 1945

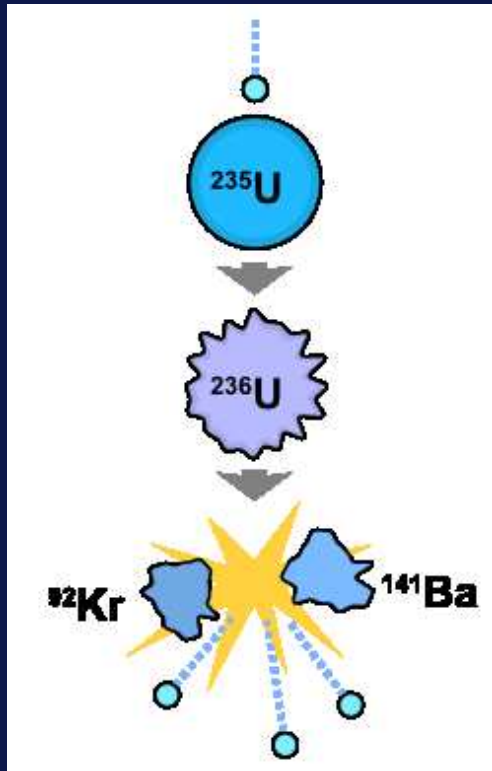
Consequence
compitition

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of Nuclear Science

Nuclear Weapon

Nuclear fission

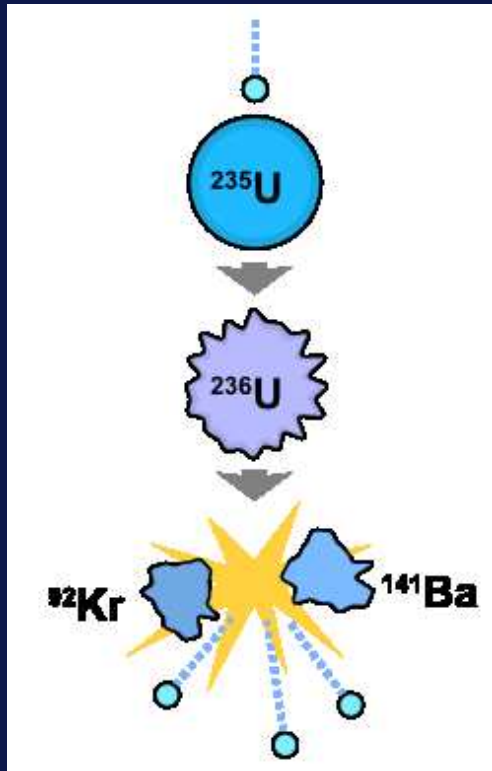
什么是核裂变？



- Events
- Big Figures
- Nuclear Weapon
- Nuclear fission**
- letter
- 6.August 1945
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Nuclear fission

什么是核裂变？



后果很严重!



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letter

爱因斯坦给罗斯福总统写信，阐述发展核武器的重要性

Albert Einstein
Old Grove Rd.
Nassau Point
Peconic, Long Island
August 2nd, 1939

F.D. Roosevelt,
President of the United States,
White House
Washington, D.C.

Sir:

Some recent work by E.Fermi and L. Szilard, which has been communicated to me in manuscript, leads me to expect that the element uranium may be turned into a new and important source of energy in the immediate future. Certain aspects of the situation which has arisen seem to call for watchfulness and, if necessary, quick action on the part of the Administration. I believe therefore that it is my duty to bring to your attention the following facts and recommendations:

In the course of the last four months it has been made probable - through the work of Joliot in France as well as Fermi and Szilard in America - that it may become possible to set up a nuclear chain reaction in a large mass of uranium, by which vast amounts of power and large quantities of new radium-like elements would be generated. Now it appears almost certain that this could be achieved in the immediate future.

This new phenomenon would also lead to the construction of bombs, and it is conceivable - though much less certain - that extremely powerful bombs of a new type may thus be constructed. A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port together with some of the surrounding territory. However, such bombs might very well prove to be too heavy for transportation by air.

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The United States has only very poor ores of uranium in moderate quantities. There is some good ore in Canada and the former Czechoslovakia, while the most important source of uranium is Belgian Congo.

In view of this situation you may think it desirable to have some permanent contact maintained between the Administration and the group of physicists working on chain reactions in America. One possible way of achieving this might be for you to entrust with this task a person who has your confidence and who could perhaps serve in an unofficial capacity. His task might comprise the following:

- to approach Government Departments, keep them informed of the further development, and put forward recommendations for Government action, giving particular attention to the problem of securing a supply of uranium ore for the United States;
- to speed up the experimental work, which is at present being carried on within the limits of the budgets of University laboratories, by providing funds, if such funds be required, through his contacts with private persons who are willing to make contributions for this cause, and perhaps also by obtaining the co-operation of industrial laboratories which have the necessary equipment.

I understand that Germany has actually stopped the sale of uranium from the Czechoslovakian mines which she has taken over. That she should have taken such early action might perhaps be understood on the ground that the son of the German Under-Secretary of State, von Weizsäcker, is attached to the Kaiser-Wilhelm-Institut in Berlin where some of the American work on uranium is now being repeated.

Yours very truly,
Albert Einstein
(Albert Einstein)

6.August 1945

在那个清晨...

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在那个清晨...



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5. August 1945

三天以后...



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15.August 1945

日本天皇宣布投降



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■ 至少21万人直接死亡!

Consequence

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- 至少21万人直接死亡!
- 城市瞬间变成废墟...

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- 更多人死于后遗症.

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- 城市瞬间变成废墟...
- 更多人死于后遗症.
- 引起人类对核武器的深思.

competition

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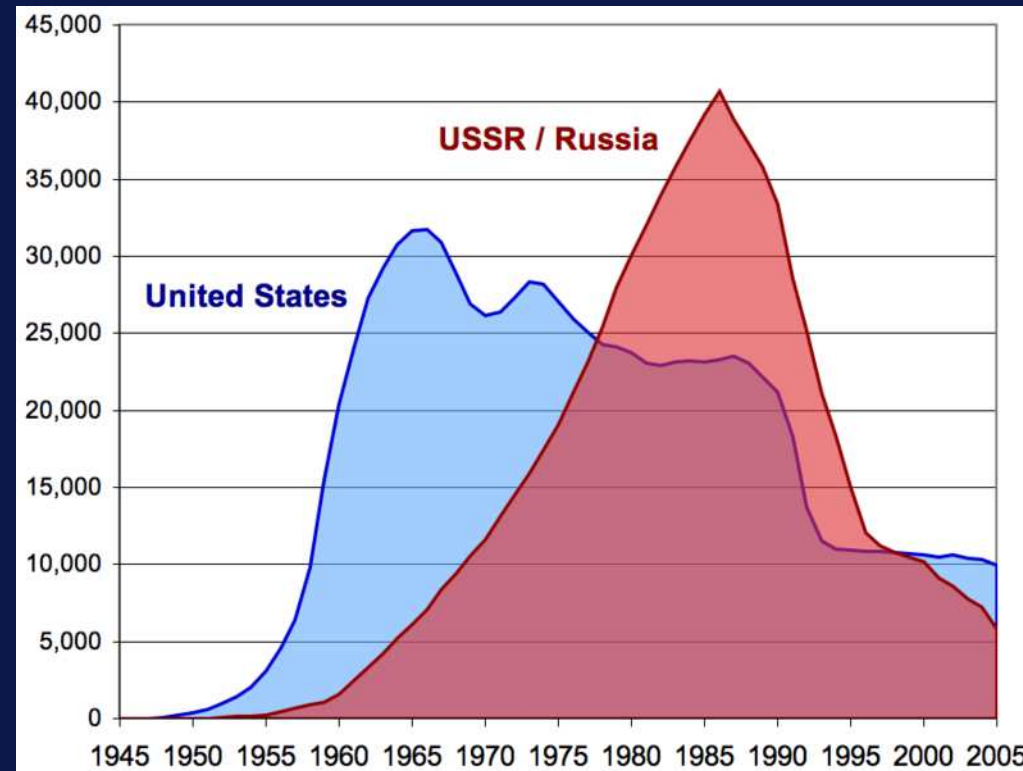
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New energy for
human

Fusion energy

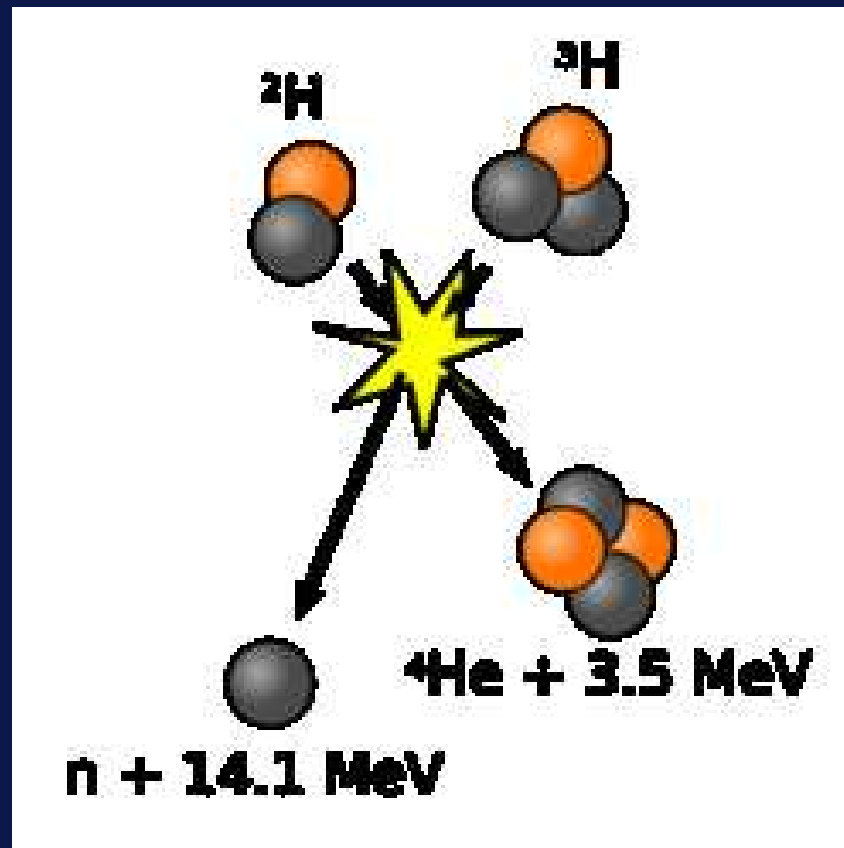
Other Applications

The End

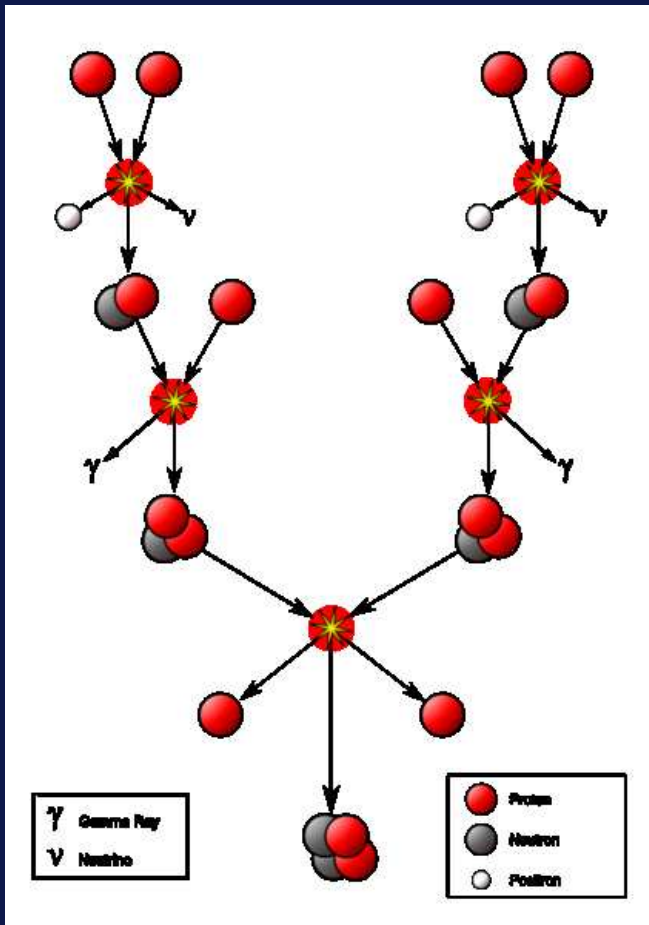
Modern application of Nuclear Science

New energy for human

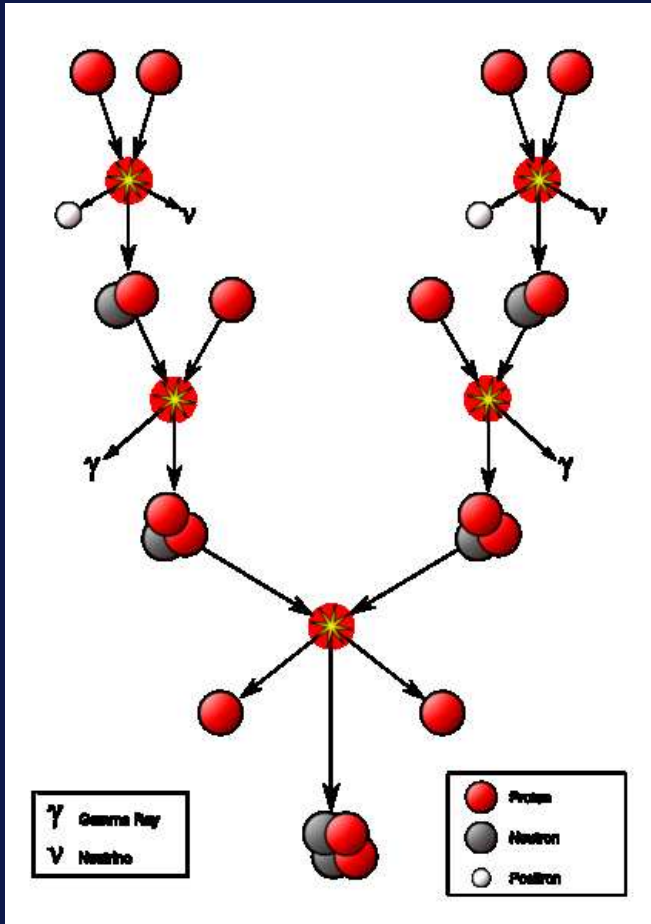
核聚变成为人类未来能源的希望



Fusion energy



Fusion energy



Other Applications

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■ 同位素示踪

Other Applications

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■ 同位素示踪

■ 核成像技术

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- 同位素示踪
- 核成像技术
- 离子束分析

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- 同位素示踪
- 核成像技术
- 离子束分析
- 辐射工艺.



The End

谢谢