

USTC SNST 2015 Autumn Semester Lecture Series

Title: Introduction to Research and Development in Tokamak Fusion Energy Science and Technology

Lecture 1: Room 1617, 930-1130, Saturday Sept. 12, 2015

- L1A: What are the Special Features of this Lecture Series? What were the feedback from attending students of preceding semester?
- L1B: Discussion on topics to cover, how to cover them, and possible helpful improvements?

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Class assistant: 徐国梁
Webpage assistant: 王伸吉

1. Class assistant: 徐国梁. Website assistant: 王申吉. 谢谢。
2. <http://www.snst.ustc.edu.cn/wdxz/xxzl/> for up to date info.
3. Lectures will be updated afterwards before the succeeding lecture according to the questions and feedback received.

My Teaching Philosophy

1. The future of fusion energy **are** in your hands.
2. But, you have to decide *IF* it is or not.
3. A teacher **learns through teaching**, by learning to describe an idea quickly and clearly, which measures understanding.
4. A teacher **gains by sharing ideas**.
5. A teacher **is inspired** when students are inspired.
6. A teacher **benefits from questions** by the students' more than they benefit from him.
7. So, questions teach the teacher, therefore **ASK!**

Ancient Chinese wisdom inspires our R&D

1. 道德经含有道经与德经, 是中国智慧第一书。

2. “道”是“万物之源”; “道法自然”。

“source of everything”, “the law of the universe and everything in it”

3. “德”是“道发生作用的方式和结果” (ref: 任思源)。

“application (scheme) and results (effects) of the law of everything”

4. Fusion nuclear science and technology R & D aims to better understand “道” and implement “德” of fusion energy.

So, let's have some fun!

1. These will be **English-only** lectures ... almost.
2. Each lecture contains two sessions of 50 minutes, 10 minutes apart.
3. Each session has only 25-minute material in PDF format.
4. You can ask topic-related questions any time during the lecture, in English only.
5. You can ask broader questions during the remainder of a session, time permitting, in English only.
6. I will ask for your feedback and suggestions on any aspect of the lecture during the last 10 minutes, again in English only.
7. I will stay after class to entertain additional questions, in any language.

What we learnt from students in Spring 2015?

- Generally positive about the class, with some suggestions:

Raise hands

- 可以提高广度
- 应有连贯性
- 增加讲课内容的探讨和讨论
- 一节课老师讲,一节课同学讲
- 讲到重点难点时应强调, 不同课程之间的关联性小一点
- 周四前发送上课的时间和PDF
- 考虑加大宣传力度或是给予学分

What we learnt from students in Spring 2015?

- Feedback on suggested topics:

Plasma-facing material and component R&D in support of continuous tokamak operation

面向等离子体的材料和部件的研发，来支助持续的托卡马克运行

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Plasma “kitchen physics” at the plasma-material interface
在等离子材料界面的等离子“厨房物理学”

2

Reduce impurity ingestion by Edge and core plasma modifications
由边缘和核心等离子改进来减少摄入杂质

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Linear plasma devices and their PMI R&D applications
线性等离子体设备及其对PMI的研发应用

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2015 / 2016 / 2017 Major Public Holiday Calendar

Name	Date	Legal Holidays	2015	2016
New Year's Day	Jan. 1	1 day	Jan. 1 - 3 off	Jan. 1 - 3 off
Chinese New Year	subject to lunation	3 days	Feb. 19 (Feb. 18 - 24 off)	Feb. 8 (Feb. 7 - 13 off)
Qingming	Apr. 4 or 5	1 day	Apr. 5 (Apr. 4 - 6 off)	Apr. 4 (Apr. 2 - 4 off)
May Day	May 1	1 day	May 1 - 3 off	Apr. 30 - May 2 off
Dragon Boat	5th of 5th lunar month	1 day	Jun. 20 (Jun. 20 - 22 off)	Jun. 9 (Jun. 9 - 11 off)
Victory Day	Sep. 3	1 day	Sep. 3 (70th Anniversary of Victory over Japan)	Sep. 3 (no holiday)
Mid-Autumn Day	Aug. 15 of lunar calendar	1 day	Sep. 27 (Sep. 26 - 27 off)	Sep. 15 (Sep. 15 - 17 off)
National Day	Oct. 1	3 days (Oct. 1 - 3)	Oct. 1 - 7	Oct. 1 - 7

Class Dates?

1. To work around national holidays

Please raise hands		1) 9/12
		2) 9/19
		3) 10/10
		4) 10/24
		5) 11/7
		6) 11/21
		7) 12/5
		8) 12/19

Lecture 2: Room 1617, 930-1130, Saturday Sept. 19, 2015