

微波物理與應用(I) PHYS5370 (3 credits)
Microwave Physics and Applications (I)

Professor: Tsun-Hsu Chang (張存續)

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Department of Physics

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Microwave Physics and Applications (I)

Textbook :

David M. Pozar, Microwave Engineering, 3rd Edition (歐亞書局)

References :

- David K. Cheng, Field and Wave Electromagnetics, 2nd Edition.
- Robert E. Collin, Foundations for Microwave Engineering, 2nd Edition.
- 郭仁財教授翻譯中文版

Time : Thursdays (R6R7R8: 14:20–15:40 and 15:50–17:00)

Classroom : Physics Building R501

Teacher : Professor Tsun-Hsu Chang (張存續)

Office: Physics Building 417R (Ext. 42978)

Lab: Physics Building 119R (Ext. 42560)

Fields of Interest:

- Development of Terahertz Sources and Devices
- Microwave Physics and Applications
- Microwave/Materials Interaction

Lecture Notes Download:

<http://www.phys.nthu.edu.tw/~thschang/MWPA.htm>
or <http://www.phys.nthu.edu.tw/~hf5/>

Schedule (depending on the students' condition)

週次	時間	上課內容
一	02/20(四)	Introduction to MWPA Chap.1 + Chap. 2 Transmission Line Theory
二	02/27(四)	Chap. 2 Transmission Line Theory
三	03/06(四)	Chap. 2 Transmission Line Theory
四	03/13(四)	Chap. 3 Transmission Line and Waveguides
五	03/20(四)	Characteristics of Waveguide Modes and Their Applications
六	03/27(四)	Chap. 4 Microwave Network Analysis
七	04/03(四)	Chap. 4 Microwave Network Analysis
八	04/10(四)	Excitation of a Specific Waveguide Modes
九	04/17(四)	Chap. 5 Impedance Matching and Tuning
十	04/24(四)	Chap. 5 Impedance Matching and Tuning
十一	05/01(四)	Modal Analysis for Group Delay Study By TA Yao
十二	05/08(四)	Chap. 6 Microwave Resonators
十三	05/15(四)	Open Cavity: Introduction and Simulation
十四	05/22(四)	Chap. 9 Theory and Design of Ferrimagnetic Components
十五	05/29(四)	Chap. 9 Theory and Design of Ferrimagnetic Components
十六	06/05(四)	Applications of Ferrite Materials to Circulator and Isolators
十七	06/12(四)	Final oral presentation I
十八	06/19(四)	Final oral presentation II

How to evaluate students' performance?

- No mid-term and final exams.
- Oral presentation: Each one has 20 minutes, including 15 min presentation and 5 min question/answer period. The topic of your talk should be related to this course. You are free to choose any relevant topic.
- Grading policy: The final score will be normalized to reflect an average consistency with other courses. It depends on your oral presentation and participation.
- Active participation are highly encouraged.
- (final score) = (oral presentation)+ (class participation)

Others

- The contents of this course are designed for senior and graduate level students. Only passive devices are addressed.
- This book shows that microwave circuits and devices can be explained through the use of circuit theory, Maxwell's equations, and related concepts.
- If you have any question, do not hesitate to raise your hand.
- Any comment on improving the pedagogy is more than welcome and is highly appreciated.