NCTS
National Center for Theoretical Sciences

2016 NCTS

Summer School for Undergraduate
Aspects of Elliptic Curves and Complex Manifolds

Lecturers: **Prof. Yifan Yang** 楊一帆 *(NCTU)*
Prof. Wu-Yen Chuang 莊武諺 *(NTU/NCTS)*
Prof. Chin-Yu Hsiao 蕭欽玉 *(AS/NCTS)*
Venue: **Rm 101, Astro-Math Bldg., NTU**

此課程同時為台灣大學所開設之選修課程，通過者可授予2學分。

本課程邀請三位專家藉由橢圓曲線的各種不同的面相，引介學生認識包含分析代數幾何等相關的數學工具在此題材上如何互相交織，以及後續的各種發展。

Week 1.
7/25-7/29
10:00-12:00
13:30-15:30

Introductory and Arithmetic Aspects
Lecturer: Prof. Yifan Yang 楊一帆 (NCTU)

1. Elliptic Curves Over C
2. Elliptic curves over Q
3. Elliptic curves over finite fields
4. L-functions of elliptic curves over Q

Week 2.
8/01-8/05
10:00-12:00
13:30-15:30

Algebraic Aspects: Dualities of Elliptic Curves
Lecturer: Prof. Wu-Yen Chuang 莊武諺 (NTU/NCTS)

1. Line bundles on complex tori
2. Poincare line bundle
3. Cohomology of the line bundles
4. Theta functions
5. Homological mirror symmetry for elliptic curves

Week 3.
8/08-8/18
10:00-12:00
13:30-15:30

**An Introduction to Complex Analytic Geometry:
Bergman Kernel and Demailly's Morse Inequalities**
Lecturer: Prof. Chin-Yu Hsiao 蕭欽玉 (AS/NCTS)

1. The concept of complex manifolds, describe line bundles on complex torus by using theta functions
2. Holomorphic vector bundle, connection, curvature
3. Dolbeault cohomology, Elliptic P.D.E on compact complex manifold, Hodge theory
4. Bergman kernel function and Proof of Demailly's Morse inequalities

報名方式：填寫報名表單 https://goo.gl/4PYZay
繳交簡歷、成績單、學習計畫（說明動機與志向）
至洪先生daniel@ncts.ntu.edut.tw, (02)3366-8816

報名截止：7/4
聯　絡　人：洪先生

網頁資訊：http://goo.gl/mPwJdd