2nd East Asia Section of IPIA-Young Scholars Symposium

November 5 - 6, 2016
Rm202, NCTS (Astro-Math Bldg., NTU)

Abstracts & Program

National Center for Theoretical Sciences

Organizers:

Hyeonbae Kang (Inha University)

Gen Nakamura (Inha University)

Gunther Uhlmann (University of Washington)

Jenn-Nan Wang (National Taiwan University)

Bo Zhang (Chinese Academy of Sciences)

Jun Zou (The Chinese University of Hong Kong)

National Center for Theoretical Sciences

2nd East Asia Section of IPIA-Young Scholars Symposium

November 5 (Sat.), 2016
Rm202, NCTS (Astro-Math Bldg., NTU)

	Speaker/Title
8:20-8:50	*Registration*
8:50-9:00	*Opening*
9:00-10:00	Gunther Uhlmann Harry Potter's Cloak via Transformation Optics
10:00-10:20	*Break*
10:20-11:00	Haibing Wang Inverse Boundary Value Problems for the Heat Equation
11:00-11:40	Hiromichi Itou On Reconstruction of a Cavity In a Three Dimensional Linearized Viscoelasticity from Transient Boundary Data
11:40-11:50	*Break*
11:50-12:30	Sanghyeon Yu Hybrid Numerical Scheme for Plasmonic Nanospheres Composites
12:30-13:30	*Lunch*
13:30-14:10	Gi-Ren Liu Assess Sleep Stage by Respiration Signal and the Techniques of Diffusion Maps
14:10-14:50	Yuliang Wang Recovering an Electromagnetic Obstacle by a Few Phaseless Backscattering Measurements
14:50-15:00	*Break*
15:00-15:40	Yikan Liu Two Inverse Source Problems for Time-Fractional Diffusion Equations
15:40-16:20	Eemeli Blasten Inverse Scattering Using a Single Incident Wave
16:20-16:30	*Break*
16:30-17:10	Catalin Carstea A Uniqueness Result for the Inverse Boundary Value Problem of Generally Anisotropic Elasticity with Piecewise Constant Coefficients
17:10-17:50	Jingni Xiao Corner Always Scatter for Electromagnetic Waves
18:00--	*Reception*

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November 6 (Sun.), 2016
Rm202, NCTS (Astro-Math Bldg., NTU)

	Speaker/Title
9:00-10:00	Hyeonbae Kang Fine Analysis of Stress Concentration between Two Inclusions with Extreme Material Properties
10:00-10:20	*Break*
10:20-11:00	Atsushi Kawamoto Carleman Estimates and Inverse Source Problems for Fractional Diffusion Equations
11:00-11:40	Jiaqing Yang Recovery in the Conductivity Problem with Possibly Impenetrable Obstacles Inside
11:40-11:50	*Break*
11:50-12:30	Junyong Eom Reconstruction of the Shear Modulus of Viscoelastic Systems in a Thin Cylinder: An Inversion Scheme and Experiments
12:30-13:30	*Lunch*
13:30-14:10	Hai Zhang Super-Resolution in Resonant Media
14:10-14:50	Hisashi Morioka Inverse Scattering Problems on Perturbed Lattices and Geometry of Networks
14:50-15:00	*Break*
15:00-15:40	Yiran Wang Inverse Problems for Semilinear Wave Equations in Space-Time
15:40-16:20	Rulin Kuan Strong Unique Continuation for Two-dimensional Elliptic Systems with Gevrey Coefficients
16:20-16:30	*Break*
16:30-17:10	Xiaofei Li Generalized Polarization Tensors Associated with an Imperfect Interface and Their Applications to Neutral Inclusions
17:10-17:50	Manas Kar Inverse Problems for p-Laplacian: Progress and Challenges
18:30--	*Banquet*

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Harry Potter's Cloak via Transformation Optics

Gunther Uhlmann (University of Washington)

Abstract:
Can we make objects invisible? This has been a subject of human fascination for millennia in Greek mythology, movies, science fiction, etc. including the legend of Perseus versus Medusa and the more recent Star Trek and Harry Potter. In the last thirteen years transformation optics, a very simple mathematical method, was proposed as a general procedure to achieve invisibility for several types of waves. We will describe this method and applications in this talk.

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Inverse Boundary Value Problems for the Heat Equation

Haibing Wang (Southeast University)

Abstract:
In this talk, we are concerned with the reconstruction of unknown cavities or inclusions inside a heat conductor by active thermography. The procedure of this technique is to inject a heat flux onto the conductor and measure the resulting temperature on its boundary. In some practical situations, we can repeat this procedure many times and almost have the so-called Neumann-to-Dirichlet map. Mathematically, it is modeled as an inverse boundary value problem for the heat equation. Taking the Neumann-to-Dirichlet map as measured data, we establish a non-iterative method to reconstruct the cavities or inclusions. Some numerical results will be presented to show the effectiveness of the reconstruction scheme. This is a joint work with Prof. Gen Nakamura.

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On Reconstruction of a Cavity in a Three Dimensional Linearized Viscoelasticity from Transient Boundary Data

Hiromichi Itou (Tokyo University of Science)

Abstract:
The enclosure method is one of the analytical methods for solving the reconstruction issue of inverse problems and gives us the direct process without iterative computations for extracting information about unknown discontinuity embedded in a known background medium, such as a cavity, crack, inclusion or obstacle, from observation data. This method was originally proposed by Ikehata [1] in 1999 and since then has been applied to a variety of inverse boundary value problems governed by elliptic PDEs with the use of a single or infinitely many observation data; for details see [3-5,7] and references therein. Moreover, starting with [2] in 2007, it became possible to apply this method to inverse initial boundary value problems governed by parabolic and hyperbolic equations in multi-dimensions; for example, in the case of the wave equation and the heat equation. This method for such dynamical inverse problems has the major advantage that it only requires one to make use of the obtained data over a finite time interval. In this talk, as one of the extensions of the results for the reconstruction problem of cavities in a heat conductive body, I introduce a method for extracting information about a cavity embedded in a linearized viscoelasticity from dynamical observation data on the boundary of the body. As the result, we establish a formula extracting three kinds of information of the unknown cavity: the support function, the distance from an outer point of the body, minimum radius of the open ball including the cavity centered at a point, with infinitely many sets of the boundary data [6]. Furthermore, this problem is a mathematical model of typical inverse problems in the scattering of viscoelastic waves. At the same time, the method to solve this inverse problem may have possible applications in nondestructive evaluation in engineering.

References

[1] M. Ikehata, Enclosing a polygonal cavity in a two-dimensional bounded domain from Cauchy data, Inverse Problems, 15, 1231-1241 (1999).

[2] M. Ikehata, Extracting discontinuity in a heat conductive body. One-space dimensional case, Appl. Anal., 86, 963-1005 (2007).

[3] M. Ikehata and H. Itou, Reconstruction of a linear crack in an isotropic elastic body from a single set of measured data, Inverse Problems, 23, 589-607 (2007).

[4] M. Ikehata and H. Itou, An inverse problem for a linear crack in an anisotropic elastic body and the enclosure method, Inverse Problems, 24, 025005 (2008).

[5] M. Ikehata and H. Itou, Extracting the support function of a cavity in an isotropic elastic body from a single set of boundary data, Inverse Problems, 25, 105005 (2009).

[6] M. Ikehata and H. Itou, On reconstruction of a cavity in a linearized viscoelastic body from infinitely many transient boundary data, Inverse Problems, 28, 125003 (2012).

[7] Masaru Ikehata, Hiromichi Itou and Akira Sasamoto, The enclosure method for an inverse problem arising from a spot welding, Math. Meth. Appl. Sci., 39, 3565-3575 (2016).

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Hybrid Numerical Scheme for Plasmonic Nanospheres Composites

Sanghyeon Yu (ETH Zürich)

Abstract:
Recently, the plasmon resonances of a densely packed composite of nanospheres have received considerable attention due to its super-resolution imaging capability. However, the numerical computation of the electric field for the composites is very hard because extremely fine mesh is required in the narrow gap region. In 1998, Cheng and Greengard developed a hybrid numerical scheme for densely packed composites of conducting cylinders or spheres by combining the method of image charges and the multipole expansion. However, their method is not directly applicable for plasmonic nanospheres since the image charges solution for two spheres does not converge when the dielectric constant have negative real part. In this talk, I will present how to extend their hybrid scheme for plasmonic nanospheres composites.

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Assess Sleep Stage by Respiration Signal and the Techniques of Diffusion Maps

Gi-Ren Liu (National Cheng Kung University)

Abstract:
I would like to talk about how to use the respiration signals, including the thoracic (THO) and abdominal (ABD) movement signals during sleep, to capture the time-dependent sleep stages, consisting of Awake, Rapid-Eye-Movement (REM), N1, N2, and N3. Currently, the identification of the sleep stage within each time slot relies on expensive and labor-intensive Polysomnography (PSG). This limitation motivates the development of an objective and automatic identification system for the sleep stages. The diffusion map with the features extracted from respiration signals is applied to re-parameterize the time slots during sleep. Our simulation results show that the time slots with the same sleep stage are roughly clustered together. After getting the clusters, we apply the support vector machine to separating them into five regions and use the cross validation to assess the performance of prediction. In summary, our simulation results show that the accuracy of prediction can reach around 70% at least. This is a join work with Hautieng Wu (University of Toronto) and Yuan-Chung Sheu (National Chiao Tung University).

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Recovering an Electromagnetic Obstacle by a Few Phaseless Backscattering Measurements

Yuliang Wang (Hong Kong Baptist University)

Abstract:
We consider the electromagnetic scattering from a convex polyhedral PEC or PMC obstacle due to a time-harmonic incident plane wave. It is shown that the modulus of the far-field pattern in the backscattering aperture possesses a certain local maximum behavior. Using the local maximum indicating phenomena, one can determine the exterior unit normal directions, as well as the face areas, of the front faces of the obstacle. Then we propose a recovery scheme of reconstructing the obstacle by phaseless backscattering measurements. This work significantly extends our recent study from 2D and acoustic scattering to the more challenging 3D and electromagnetic scattering.

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Two Inverse Source Problems for Time-Fractional Diffusion Equations

Yikan Liu (The University of Tokyo)

Abstract:
In this talk, we consider the initial-boundary value problem for a fractional diffusion equation

$$(\partial_t^\alpha - \triangle)u(x,t) = f(x)g(t),$$

where ∂_t^α $(0 < \alpha < 1)$ denotes the Caputo derivative. We investigate two inverse source problems, namely the determination of either the spatial component $f(x)$ or the temporal component $g(t)$ by appropriate observation data. The starting point for both problems is a fractional Duhamel principle, which represents the solution in form of a convolution and reduces the problem to the discussion of its homogeneous counterpart. For the determination of $f(x)$ by the interior observation, we prove the uniqueness by utilizing a newly established weak unique continuation property. For the determination of $g(t)$ by the single point observation, the uniqueness follows from the application of a strong maximum principle. Numerically, we develop iterative methods for both problems with regularization to obtain stabilized solutions, and the numerical performance are demonstrated by several numerical examples.

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Inverse Scattering Using a Single Incident Wave

Eemeli Blåsten (IAS, Hong Kong University of Science and Technology)

Abstract:
Counting dimensions reveals that a continuum of incident waves is needed to recover a scattering potential in time-harmonic inverse scattering. Classical methods such as the linear sampling method by Colton and Kirsch, or the factorization method by Kirsch could be used to solve for the potential then. However for these methods to work well each incident wave should produce a non-trivial scattered wave. There are radially symmetric penetrable scatterers for which this is not true. With Sylvester and Päivärinta we showed that a scatterer having a right-angled corner always scatters. Hu, Salo and Vesalainen generalized this and showed an interesting consequences: *a single far-field pattern determines the support of a convex polygonal scatterer!* In this talk I will discuss quantifying these results. This is a joint work with Hongyu Liu.

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A Uniqueness Result for the Inverse Boundary Value Problem of Generally Anisotropic Elasticity with Piecewise Constant Coefficients

Catalin Carstea (NCTS)

Abstract:

The case considered in this talk is that of the anisotropic elasticity equation with piecewise constant coefficients, where the domains where the coefficients are constant are assumed to be known a priori. In this talk I will show how, under some assumptions on the geometry of the boundaries, one may determine the coefficients adjacent to the outer boundary and derive a uniqueness result for the inner coefficients, from local boundary measurements.

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Corner Always Scatter for Electromagnetic Waves

Jingni XIAO (Hong Kong Baptist University)

Abstract:
The existence of the so called "non-scatter energy" provides a possible approach to partially coat a scatterer. We prove that an inhomogeneous electromagnetic(EM) medium with a right corner and satisfying some regularity conditions can never produce such a non-scatter energy. The work extends the previous study in 2014 by Blåsten, Päivärinta and Sylvester, from the acoustic case to the much more challenging electromagnetic case.

There are three crucial ingredients in our study: an orthogonality relation for solutions to the Maxwell equations; the non-vanish properties for a particular form of the Laplace transform on certain homogeneous harmonic polynomials; and the construction of exponentially decaying (with respect to the L_p-norm, $p \geq 6$) solutions to the Maxwell equations. We follow the general strategy similar to the acoustic (scalar) case. However, the vectorial and more complicated Maxwell system bring far more new challenges. To construct the desired CGO solutions for the Maxwell system, an augmented 8-dimensional Schördinger system is investigated. Owning to the new form of the CGO solutions, the non-vanishment of the involoved Laplace transform is essentially different to the acoustic case.

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Fine Analysis of Stress Concentration between Two Inclusions with Extreme Material Properties

Hyeonbae Kang (Inha University)

Abstract:
In composites consisting of inclusions and a matrix, some inclusions are located very close to each other. If these inclusions have an extreme material property, such as high or low conductivity in the context of electro-statics, or high stiffness in elasticity, then it is known that high stress occurs in between these inclusions. Since the stress can be a cause of the material failure, it is important to understand the stress. In last 10 years or so there has been significant progress in quantitative comprehension of the stress concentration through fine analysis. In this talk I will review the recent progress. I will also discuss on some outstanding and challenging problems in this direction of mathematical research.

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Carleman Estimates and Inverse Source Problems for Fractional Diffusion Equations

Atsushi Kawamoto (The University of Tokyo)

Abstract:

In this talk, we consider fractional diffusion equations where the time fractional derivative is defined in the Caputo sense. First we study the one dimensional fractional diffusion equation of half order in time. Establishing the Carleman estimates, we show the Lipschitz type stability estimates in inverse problems of determining the time independent source factor from the additional data at an arbitrarily fixed time and interior or boundary data over an appropriate time interval. Second we investigate the multidimensional fractional diffusion equation of first and half order in time. We prove the Hölder type stability estimate in the determination of the time independent source factor from the data at an arbitrarily fixed time by using the Carleman estimate. Our methodology is based on the Bukhgeim-Klibanov method.

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Recovery in the Conductivity Problem with Possibly Impenetrable Obstacles Inside

Jiaqing Yang (Xi'an Jiaotong University)

Abstract:
In this talk, I will discuss the electrostatic inverse boundary value problem also known as electrical impedance tomography (EIT) for the case where the conductivity is a piecewise constant function on a bounded domain $\Omega \subset \mathbb{R}^n$, $n \geq 2$, and several impenetrable obstacles lie inside Ω. We show that the conductivity can be recovered in each domain partition including its support in terms of the local Dirichlet-to-Neumann map defined on an arbitrary small open subset of the boundary. Furthermore, we show that the impenetrable obstacles inside Ω are also recovered using such partial data. The results depends on a novel and elementary discussion developed in the present talk, which is completely different from the most existing approaches based on constructing complex geometrical optics solutions.

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Reconstruction of the Shear Modulus of Viscoelastic Systems in a Thin Cylinder: An Inversion Scheme and Experiments

Junyong Eom (Inha Univeristy)

Abstract:
We consider a problem of reconstructing the shear modulus of an viscoelastic system in a thin cylinder from the measurements of displacements induced by torques applied at the bottom of the cylinder. The viscoelastic system is a mathematical model of a pendulum-type viscoelastic spectrometer (PVS). We first compute in an explicit form the solution of the viscoelastic system, and then derive with an error estimate the leading order term of the average of the solution. This leading order term yields a nonlinear inversion scheme to determine the shear modulus from the measurements of displacements. We apply the inversion scheme to determine the shear modulus using experimental data acquired from a PVS system.

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Super-Resolution in Resonant Media

Hai Zhang (Hong Kong University of Science and Technology)

Abstract:
We develop a mathematical theory to explain the mechanism of super-resolution in various resonant media. Examples includes: systems of Helmholtz resonators, cluster of plasmonic particles, high contrast media as well as bubbly media.

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Inverse Scattering Problems on Perturbed Lattices and Geometry of Networks

Hisashi Morioka (Doshisha University)

Abstract:
We consider the inverse scattering for discrete Schrödinger operators on locally perturbed lattices. We show that the scattering matrix is equivalent to the Dirichlet-to-Neumann map associated with boundary value problems on a finite part of the lattice.
We can reconstruct scalar potentials as well as the graph structure from the S-matrix. In particular, we can probe the defect in the hexagonal lattice (graphene). This is a joint work with Kazunori Ando (Ehime Univ., Japan) and Hiroshi Isozaki (Prof. emeritus of Univ. of Tsukuba, Japan).

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Inverse Problems for Semilinear Wave Equations in Space-Time

Yiran Wang (HKUST and University of Washington)

Abstract:
We consider inverse problems in space-time (M, g), a 4-dimensional Lorentzian manifold. For semilinear wave equations $\Box_g u + H(x, u) = f$, where g denotes the usual Laplace-Beltrami operator, we show that the source-to-solution map $L : f \to u|V$, where V is a neighborhood of an observer, determines the topological, differentiable structure and the conformal class of the metric of the space-time in the maximal set where waves can propagate from the observer and return. Moreover, on a given space-time (M, g), the source-to-solution map determines some coefficients of the Taylor expansion of H in u. Applications to other nonlinear wave equations will be discussed as well.

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Strong Unique Continuation for Two-dimensional Elliptic Systems with Gevrey Coefficients

Rulin Kuan (National Cheng Kung University)

Abstract:

In this talk, we prove the strong unique continuation property (SUCP) for the general elliptic systems of two variables. We assume all the coefficients belong to Gevrey class and the characteristic roots of principal symbol are distinct. We reduce and transform the original systems to a diagonal but larger second order elliptic systems and prove SUCP by establishing appropriate Carleman estimates for this reduced system.

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Generalized Polarization Tensors Associated with an Imperfect Interface and Their Applications to Neutral Inclusions

Xiaofei Li (South University of Science and Technology of China)

Abstract:

We focus on solving inverse conductivity problems for two-phase composites with imperfect bonding interface. We prove the representation formula for the steady-state voltage potential of the inverse conductivity problem with imperfect bonding. We introduce the GPTs associated with a $C^{1,\alpha}$ imperfect interface. We then prove important properties of symmetry, bounds and positivity of the GPTs. The neutral inclusions with imperfect interface are also considered. We prove the neutral criterion with respect to the uniform applied field by means of GPTs arguments. We also discuss about the near-cloaking using GPT-vanishing structure. Numerical results are also given.

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Inverse Problems for p-Laplacian: Progress and Challenges

Manas Kar (NCTS)

Abstract:

In this talk, I will discuss on inverse problems related to p-Laplace equation. Mainly, I will talk about the interior uniqueness result for conductivities and some results on obstacle detection problem. Regarding the interior uniqueness result, we will show that any two conductivities with $\sigma_1 \geq \sigma_2$ having same nonlinear DN map must be identical in the planner domain and in the higher dimensional domain the same result will be true for conductivities close to constant. Finally, we justify enclosure method and monotonicity method for this nonlinear model to reconstruct the convex hull of an unknown obstacle.

Restaurants around NTU

- Golden Chicken Garden Chinese Restaurant 金雞園
- No. 3-1, Aly. 8, Ln. 316, Sec. 3, Roosevelt Rd., Zhongzheng Dist

- Coco Curry House Coco 壹番屋
- No. 1, Sec. 4, Roosevelt Rd., Daan Dist National Taiwan University

- Wistaria Tea House 紫藤廬
- NO. 1 Xinsheng S. Rd., Sec. 3

- Din Tai Fung (Xinyi) 鼎泰豐
- Second Section NO. 194 Xinyi Rd., Sec. 5

- Smoothie House 思慕昔
- No.15, Yongkang St., Daan Dist.

- Yong Kang Beef Noodles 永康牛肉麵
- NO. 17 Jinshan S. Rd., Sec. 2

Restaurants around NTU

- Tai Yi Milk King 台一牛奶大王
- No. 82, Sec. 3, Xinsheng S. Rd., Daan Dist

- Chensanding 陳三鼎
- No. 8 Alley, Lane 316, Section 3, Luosifu Road

- Lan Jia Steamed Sandwich Shop 藍家割包
- No. 3, Aly. 8, Ln. 316, Sec. 3, Roosevelt Rd., Daan Dist

- Mala Hot Pot 馬辣火鍋
- No. 86, Sec. 3, Tingzhou Rd., Zhongzheng Dist

- Yiyaju Dianxinfang 易牙居
- No.16, Ln. 286, Sec. 3, Roosevelt Rd., Zhongzheng Dist 100

- Fengcheng Shaola Yuecai 鳳城燒臘
- No. 58-3, Section 3, Xinsheng S Rd, Daan District

圖例 Legend

- 1 文湖線 Wenhu Line
- 2 淡水信義線 Tamsui-Xinyi Line
- 3 松山新店線 Songshan-Xindian Line
- 4 中和新蘆線 Zhonghe-Xinlu Line
- 5 板南線 Bannan Line

- 機場 Airport
- 高鐵 HSR
- 台鐵 TRA
- 一般車站 Regular Station
- 轉乘站 Transfer Station
- 端點站 Terminal Station

N

2 淡水 Tamsui – 紅樹林 Hongshulin – 竹圍 Zhuwei – 關渡 Guandu – 忠義 Zhongyi – 復興崗 Fuxinggang – 北投 Beitou – 新北投 Xinbeitou

2 北投 Beitou – 奇岩 Qiyan – 唭哩岸 Qilian – 石牌 Shipai – 明德 Mingde – 芝山 Zhishan – 士林 Shilin – 劍潭 Jiantan – 圓山 Yuanshan – 民權西路 Minquan W. Rd. – 中山 Zhongshan – 雙連 Shuanglian

4B 蘆洲 Luzhou – 三民高中 Sanmin Senior High School – 徐匯中學 St. Ignatius High School – 三和國中 Sanhe Junior High School – 三重國小 Sanchong Elementary School – 大橋頭 Daqiaotou – 台北橋 Taipei Bridge – 菜寮 Cailiao – 三重 Sanchong – 先嗇宮 Xianse Temple – 頭前庄 Touqianzhuang – 新莊 Xinzhuang – 輔大 Fu Jen University – 丹鳳 Danfeng – 迴龍 Huilong

4A 迴龍 Huilong – 丹鳳 Danfeng – 輔大 Fu Jen University – 新莊 Xinzhuang – 頭前庄 Touqianzhuang – 先嗇宮 Xianse Temple – 三重 Sanchong – 菜寮 Cailiao – 台北橋 Taipei Bridge – 三民高中 Sanmin Senior High School – 蘆洲 Luzhou

兒童新樂園 Children's Amusement Park

4 南勢角 Nanshijiao – 景安 Jingan – 永安市場 Yongan Market – 頂溪 Dingxi – 古亭 Guting – 中正紀念堂 Chiang Kai-Shek Memorial Hall – 小南門 Xiaonanmen – 東門 Dongmen – 中山國小 Zhongshan Elementary School – 行天宮 Xingtian Temple – 松江南京 Songjiang Nanjing

3 新店 Xindian – 新店區公所 Xindian District Office – 七張 Qizhang – 小碧潭 Xiaobitan – 大坪林 Dapinglin – 景美 Jingmei – 萬隆 Wanlong – 公館 Gongguan – 台電大樓 Taipower Building – 古亭 Guting – 中正紀念堂 Chiang Kai-Shek Memorial Hall – 東門 Dongmen – 大安森林公園 Daan Park – 大安 Daan – 忠孝敦化 Zhongxiao Dunhua – 忠孝復興 Zhongxiao Fuxing – 南京復興 Nanjing Fuxing – 中山國中 Zhongshan Junior High School – 松山機場 Songshan Airport – 大直 Dazhi – 劍南路 Jiannan Rd. – 西湖 Xihu – 港墘 Gangqian – 文德 Wende – 內湖 Neihu – 大湖公園 Danhu Park – 葫洲 Huzhou – 東湖 Donghu – 南港軟體園區 Nangang Software Park

3 松山 Songshan – 南京三民 Nanjing Sanmin – 台北小巨蛋 Taipei Arena – 南京復興 Nanjing Fuxing – 忠孝復興 Zhongxiao Fuxing – 忠孝敦化 Zhongxiao Dunhua – 國父紀念館 Sun Yat-Sen Memorial Hall – 市政府 Taipei City Hall – 永春 Yongchun – 後山埤 Houshanpi – 昆陽 Kunyang – 南港 Nangang – 南港展覽館 Taipei Nangang Exhibition Center

5 1 南港 Nangang – 南港展覽館 Taipei Nangang Exhibition Center

2 象山 Xiangshan – 台北101/世貿 Taipei 101/World Trade Center – 信義安和 Xinyi Anhe – 大安 Daan – 大安森林公園 Daan Park – 東門 Dongmen – 中正紀念堂 Chiang Kai-Shek Memorial Hall – 小南門 Xiaonanmen – 古亭 Guting – 台大醫院 NTU Hospital – 中山 Zhongshan – 雙連 Shuanglian – 民權西路 Minquan W. Rd. – 圓山 Yuanshan – 士林 Shilin – 劍潭 Jiantan – 北門 Beimen – 西門 Ximen – 台北車站 Taipei Main Station – 善導寺 Shandao Temple – 忠孝新生 Zhongxiao Xinsheng

5 板橋 Banqiao – 新埔 Xinpu – 江子翠 Jiangzicui – 龍山寺 Longshan Temple – 西門 Ximen – 府中 Fuzhong – 亞東醫院 Far Eastern Hospital – 海山 Haishan – 土城 Tucheng – 永寧 Yongning – 頂埔 Dingpu

1 動物園 Taipei Zoo – 木柵 Muzha – 萬芳社區 Wanfang Community – 萬芳醫院 Wanfang Hospital – 辛亥 Xinhai – 麟光 Linguang – 六張犁 Liuzhangli – 科技大樓 Technology Building – 大安 Daan

350公尺(m)

動物園站 Taipei Zoo Station – 動物園南站 Taipei Zoo South Station – 指南宮站 Zhinan Temple Station – 貓空站 Maokong Station

貓空纜車 Maokong Gondola

國立臺灣大學臺北校區地圖

Map of NTU Campus in Taipei City

2015 Y 07 M 09 D

臺大地圖 NTU MAP

圖例說明 Map Legend

- 餐廳 Restaurant
- 廁所 Toilet
- 提款機 ATM
- 銀行 Bank
- 博物館 Museum
- 訪客中心 Information
- 書店 Bookstore
- 網球場 Tennis Court
- 游泳池 Swimming Pool
- 排球場 Volleyball Court
- 籃球場 Basketball Court
- 棒壘球場 Baseball Field
- 人工草皮球場 Artificial Turf Court
- 醫療站 First-Aid Station
- 汽車停車場 Vehicle Parking
- 機車停車場 Motorcycle Parking
- 自行車拖吊保管場 Bike Pound
- 自行車修理站 Bike Shop
- 捷運站 Metro Station
- 捷運站出入口 Metro Station Exit
- 公車站 Bus Stop
- 出入口（車輛可通行） Vehicle Exit
- 出入口（僅供行人/自行車通行） Pedestrian / Bike Exit

校總區 Taipei Main Campus

往大安森林公園 To Daan Park

往建國高架橋 To Jianguo Expressway

建國南路三段 Sec. 3, Jianguo S. Rd.

辛亥路二段 Sec. 2, Xinhai Rd.

往捷運 科技大樓站 To Technology Building Metro Station

復興南路二段 Sec. 2, Fuxing S. Rd.

往世貿中心/ 捷運 六張犁站 To World Trade Center / Liuzhangli Metro Station

往捷運 麟光站 To Linguang Metro Station

往臺北車站 To Taipei Railway Station

往永和 / 永福橋 To Yonghe / Yongfu Bridge

往永和 / 福和橋 To Yonghe / Fuho Bridge

往新店、景美 To Xindian, Jingmei

往 1 3 To Freeway

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水源校區 Shuiyuan Campus

互動式電子地圖查詢
Interative map of the NTU Campus
http://map.ntu.edu.tw

徒步 約 4~6 分鐘
4 to 6 min, on foot

0 100 200 300 公尺(M)