

2018 Taiwan-Japan Workshop on Scattering, Dispersion, Traveling Waves, and Inverse Problems

June 16-18, 2018

Venue: Department of Mathematics, National Cheng Kung University
(Cheng Kung Campus)

國立成功大學成功校區，數學系

Website: http://www.ncts.ntu.edu.tw/events_2_detail.php?nid=193

On-Line Registration: <https://goo.gl/forms/og3JyqIntvD0rzZn2>

Speakers From Taiwan:

Kazuo Aoki, National Cheng Kung University
Shih-Wei Chou, National Central University
Ru-Lin Kuan, National Cheng Kung University
Chi-Kun Lin, Xi'an Jiaotong-Liverpool University
Ying-Chieh Lin, National University of Kaohsiung
Hsi-Wei Shih, National Cheng Kung University

From Japan:

Satoshi Masaki, Osaka University
Haruya Mizutani, Osaka University
Kenji Nakanishi, Kyoto University
Masahito Ohta, Tokyo University of Science
Jun-ichi Segata, Tohoku University

Ya-Lin Huang, National Cheng Kung University
Pu Zhao Kow, National Cheng Kung University
Guan-Ting Lin, National Cheng Kung University
Dawei Yang, National Cheng Kung University

Organizer:

Yung-Fu Fang, National Cheng Kung University

Kenji Nakanishi, Kyoto University

Sponsors:

National Center for Theoretical Sciences

NSCMRPC

National Cheng Kung University

2018 Taiwan-Japan Workshop on Scattering, Dispersion, Traveling Waves, and Inverse Problems

2018/06/16 ~ 2018/06/18 at NCKU, Tainan, Taiwan (Department of Math., NCKU)

Workshop Website: http://www.ncts.ntu.edu.tw/events_2_detail.php?nid=193

Registration site (線上報名網站): <https://goo.gl/forms/og3JyqIntvD0rzZn2>

Program

0830~0850

Registration

0850~0900

Opening Ceremony

Ssturday (06/16)

Sunday (06/17)

Monday(06/18)

Chair:		Chair:			
0900~0950	Masahito Ohta	0900~0950	Kenji Nakanishi	0900~1200	Informal Discussion
0950~1010	Break	0950~1010	Break		
1010~1100	Satoshi Masaki	1010~1100	Haruya Mizutani		
1110~1200	Hsi-Wei Shih	1110~1200	Ying-Chieh Lin		
1200~1400	Lunch	1200~1400	Lunch	1200~1400	Lunch
1400~1450	Jun-ichi Segata	1400~1450	Kazuo Aoki	1400~1800	Informal Discussion
1450~1520	Group Photo Break	1450~1520	Group Photo Break		
1520~1610	Ru-Lin Kuan	1520~1610	Chi-Kun Lin		
1615~1650	Pu Zhao Kow	1620~1710	Shih-wei Chou		
1650~1720	Dawei Yang	1710~1730	Ya-Lin Huang		
1720~1740	Guan-Ting Lin				

上海小籠湯包

便當

老郭牛肉麵

便當

雨荷舞水

台南擔子麵

梅鑫海產 三采日式料理

周氏蝦捲

農舍餐廳

如意樓-林森-東豐

1620 ~

Banquet

Chair List

Jenn-Nan Wang
Chiun-Chuan Chen
Jyh-Hao Lee

榕園
知事官邸
林百貨
武道館
台灣文學館
鄭氏家廟
孔廟
烏山頭水庫

Ching-Lung Lin

Ru-Lin Kuan
Yu-Chu Lin
Hsi-Wei Shih
上海小籠湯包
周氏蝦捲
台南擔仔麵
老鄧牛肉麵
六千牛肉湯

Need more Chairs

農舍餐廳
如意樓-林森-東豐
老鄧牛肉麵
四季川菜
三采日式料理
雨荷舞水
梅鑫海產

2018 Taiwan-Japan Workshop on Scattering, Dispersion, Traveling Waves, and Inverse Problems

Date: Jun. 16 (Wed) 2018 ~ Jun. 18 (Mon) 2018

Venue: Department of Mathematics, National Cheng Kung University

國立成功大學，成功校區，數學系

Workshop Website: http://www.ncts.ntu.edu.tw/events_2_detail.php?nid=193

Online Registration (線上報名網站): <https://goo.gl/forms/og3JyqIntvD0rzZn2>

Title and Abstract:

----- June 16 (Saturday) -----

"Masahito Ohta" <mohta@rs.tus.ac.jp>, Tokyo University of Science

Title: Strong instability of standing waves for nonlinear Schrödinger equations with a partial confinement

Abstract: We study the instability of standing wave solutions for nonlinear Schrödinger equations with a one-dimensional harmonic potential in dimension $N \geq 2$. We prove that if the nonlinearity is L^2 -critical or supercritical in dimension $N-1$, then any ground-state standing waves are strongly unstable by blowup, that is, there exist finite time blowup solutions with initial data arbitrarily close to the standing waves. This shows that the upper bound of the nonlinearity in Bellazzini, Boussaïd, Jeanjean and Visciglia (2017) is optimal for the existence of stable standing waves.

"Satoshi Masaki" <masaki@sigmath.es.osaka-u.ac.jp>, Osaka University

Title: On threshold solutions in mass-subcritical NLS

Abstract: We consider mass-subcritical nonlinear Schrodinger equation (NLS). It is known that if a data is small in a suitable topology then the corresponding solution scatters, that is, it behaves like a free solution as time goes infinity. On the other hand, there exist solutions with other behavior if a data is not small. In this talk, we want to find a threshold solution. In the mass-critical and -supercritical cases, the ground state solution plays an important role. However, in mass-subcritical case, another solution may appear.

Hsi-Wei Shih, National Cheng Kung University

Title:

Abstract:

Jun-ichi Segata <segata@m.tohoku.ac.jp>, Tohoku University

Title: Modified scattering for the 1d cubic NLS with a repulsive delta potential

Abstract: We consider the initial-value problem for the 1d cubic nonlinear Schrödinger equation with a repulsive delta potential. We prove that small initial data in a weighted Sobolev space lead to global solutions that decay in L^∞ and exhibit modified scattering.

"Ru-Lin Kuan (關汝琳)" <rkuan@mail.ncku.edu.tw>, National Cheng Kung University

Title: Strong unique continuation for two-dimensional anisotropic elliptic systems with Gevrey coefficients

Abstract: In this talk, we give the strong unique continuation property for a general two dimensional anisotropic elliptic system with real coefficients in a Gevrey class under the assumption that the principal symbol of the system has simple characteristics. The strong unique continuation property is derived by obtaining some Carleman estimate. The derivation of the Carleman estimate is based on transforming the system to a larger second order elliptic system with diagonal principal part which has complex coefficients.

Pu Zhao Kow, National Cheng Kung University

Title:

Abstract:

Dawei Yang, National Cheng Kung University

Title:

Abstract:

Guan-Ting Lin, National Cheng Kung University

Title:

Abstract:

----- June 17 (Sunday) -----

"Kenji Nakanishi" <kenjinakanishi@gmail.com>, Kyoto University

Title: Energy scattering for the 4D Zakharov system

Abstract: This talk is based on joint work with Bejenaru, Guo and Herr. We study asymptotic behavior for large time of solutions with finite energy to the Zakharov system in four space dimension. Although the dimension may be unnatural in the physics, this setting exhibits interesting critical phenomena for the mathematical analysis of solutions, related to the endpoint Strichartz estimate, the critical Sobolev embedding, and the space of bounded functions in time. The local well-posedness and small data scattering already require an unusual argument of the weak compactness combined with the results in smaller and larger function spaces. For the large data scattering, we develop Strichartz estimates for the Schrödinger equation with a potential evolving by the wave equation, using the profile decomposition and associated regularity weight functions.

"Haruya Mizutani" <haruya@math.sci.osaka-u.ac.jp>, Osaka University

Title: On Strichartz estimates for the Schrödinger equation with decaying potentials

Abstract: In this talk, we will discuss recent progress on global-in-time Strichartz estimates for the Schrödinger equation on \mathbb{R}^n , $n \geq 3$, with a real-valued potential decaying at infinity. We mainly consider the potential belonging to the scaling critical Lebesgue space $L^{n/2}$ in which case the full set of Strichartz estimates is shown to hold under the condition that zero energy is neither an eigenvalue nor a resonance. The proof employs a perturbation argument based on Duhamel's formula and some weighted L^2 -estimates for the inhomogeneous propagator. By means of the Fourier transform in the time variable, such weighted estimates can be deduced from some uniform resolvent estimates for the Schrödinger operator. If time permits, we also show that global-in-time Strichartz estimates still hold for a class of potentials which decay slower than the inverse-square potential at infinity, where a typical example is the positive Coulomb potential. In contrast to the scaling critical case, the method used in the slowly decaying case is quite different and based on some microlocal techniques such as a microlocal parametrix construction and a Littlewood-Paley type decomposition.

"(林英杰) Ying-Chieh Lin" <liny@nuk.edu.tw>, National University Kaohsiung

Title: Global solutions to the compressible Euler equations in transonic nozzle flows

Abstract: We consider the Cauchy problems for the compressible Euler equations in a variable area duct, subject to the initial data near the sonic states. An asymptotic expansion of solutions for Riemann problems is found in the series consisting of the classical Riemann solvers and the perturbations solving the linearized system of equations around solvers. We develop a generalized Glimm method to establish the existence results. The stability of the scheme is resulted from the estimates of interaction among classical elementary waves and the perturbations. When the method is applied to the problems, the limit of approximate

solutions serves as a BV entropy solution in the case that the duct is expanding.

"Kazuo Aoki" <kazuo.aoki.22v@st.kyoto-u.ac.jp>, Department of Mathematics, NCKU and NCTS, NTU

Title: Slip boundary conditions for the compressible Navier-Stokes equations: Case of a polyatomic gas
Abstract: The slip boundary conditions for the compressible Navier-Stokes equations for a polyatomic gas are derived from kinetic theory using the ellipsoidal statistical model of the Boltzmann equation for a polyatomic gas. The analysis, which follows our recent paper for a monatomic gas [K. Aoki et al., J. Stat. Phys. 169, 744-781 (2017)], is based on the Chapman-Enskog expansion and the analysis of the Knudsen layer adjacent to the boundary. The resulting slip boundary conditions are presented with explicit slip coefficients for some typical polyatomic gases. This is a joint work with Masanari Hattori and Shingo Kosuge (Kyoto University).

Chi-Kun Lin, <Andrew.Lin@xjtlu.edu.tw>, <cklin@math.nctu.edu.tw>, Xi'an Jiaotong-Liverpool University

Title: Artificial Compressibility Approximation of the Viscous Lake Equation
Abstract: We prove the global weak solution of the viscous lake equation by artificial compressibility. Similar to the incompressible limit of the Navier-Stokes equation, we have to treat the highly oscillating acoustic wave. The generalized wave group method is applied to filter out the acoustic wave. The Navier boundary condition is also discussed.

"(周世偉) Shih-wei Chou" <kevieschou@gmail.com>, National Central University

Title: Global bounded variation solutions describing Fanno-Rayleigh fluid flows in nozzles.
Abstract. In this talk, we investigate the initial-boundary value problem of compressible Euler equations including friction and heating that model the transonic Fanno-Rayleigh flows through symmetric variable area nozzles. In particular, the case of contracting nozzles is considered. A new version of a generalized Glimm scheme (GGS) is presented for establishing the global existence of entropy solutions with bounded variation. The extended Glimm-Goodman's type of wave interaction estimates are investigated to determine the stability of the scheme and the positivity of gas velocity that results in the existence of the weak solution. Moreover, a quantitative relation between the shape of the nozzle, friction, and heat is proposed for the global existence result in the contracting nozzle. Numerical simulations of the contraction-expansion and expansion-contraction nozzles are presented to validate the scheme.

Ya-Lin Huang, National Cheng Kung University

Title:

Abstract:

αβγδζ εηθκλμνξπρστυφχψω φξθφδεπθΦωλησκρνχ→≤≥€€θℱ ∩Σ||≠||∇Δ≡=∞ℝδĩςδ̢δ̣δ̤δ̥δ̦δ̧δ̨δ̩δ̪δ̫δ̬δ̭δ̮δ̯δ̰δ̱δ̲δ̳δ̴δ̵δ̶δ̷δ̸δ̹δ̺δ̻δ̼δ̽δ̾δ̿0123456789A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ±²³

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ↗↘↙ ↻ - é¥≤≥<>≦≧ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z