

Name: Chia-Chu Chen

Institution: National Cheng Kung University (NCKU), Physics
Department

Present Position: Distinguished Professor in Physics

Field of Research: Theoretical Physics

Degree Obtained: 1986, PhD in Physics Northeastern University Boston
Massachusetts USA

Previous Appointments:

(1) Visiting Assistant Professor, (1987~1990) Physics Dept. Texas A&M
University, College Station, Texas USA

(2) Associated Prof. and Professor, (1990~1997) Physics Dept. National
Chung-Hsing University Taichung Taiwan

(3) Professor, (1997~ 2014) Physics Dept. National Cheng-Kung
University (NCKU)

Tainan Taiwan

(4) Distinguished Professor, (2014~) NCKU, Physics

Honors: 2014 NCKU Distinguished University Professor

2013 NCKU Excellence in Teaching Award

2006 NCKU Excellence in Teaching Award

Work in Progress:

(1) A Different Approach for Strong Field Without Dipole Approximation. Chia-Long
Li and **C. C. Chen**

- (2) [The Investigation of Second Law of Thermodynamics Violation in Nano-system.](#)
T. Deesuwan and **C. C. Chen**
- (3) [Induced Current in Quatum Dots System with Periodic Driving,](#) Hui-Min Lin and
Chia-Chu Chen

Selected Publication

- (1) [Investigation of Entanglement Stability of Qubit System in Photon Bath by the Krauss Operator Formalism.](#) (manuscript in Preparation). H. Dinh,
S.Thammasuwan, A. Limphirat, Y. P. Yan and **C. C. Chen**
- (2) [Quantum Phase Operator Revisited](#) Nguyen Chau Phuong Thi and **Chia-Chu Chen** (Manuscript in Preparation).
- (3) [Subtleties in Adiabatic Approximation](#) Do Thi Nga and **Chia-Chu Chen**
(Manuscript in preparation).
- (4) [Non-Perturbative Evaluation of Density of state for Graphene with Magnetic Impurity](#) Tran Thi Thanh Thuy and **Chia-Chu Chen**
- (5) [Dynamical Conductivity of Graphene](#) Ngo Thi Thanh Ha and **Chia-Chu Chen**
- (6) [Entanglement Evolution and Photon-Photon Scattering,](#) Chun-Yuen Cheng and
Chia-Chu Chen (2019 to be submitted for publication)
- (7) [Possibility of Entanglement Transfer in a Uniform Electric Field](#) Hui-Min Lin,
Ru-Fen Liu, and **Chia-Chu Chen** Phys. Rev. A **85**, 022336 – Published 27
February 2012
- (8) [Cellular Ability to Sense Spatial Gradients in the Presence of Multiple Competitive Ligands](#) Shu-Hao Liou and **Chia-Chu Chen** **Phys. Rev. E** **85**,
011904
- (9) [DIRECT COUNTING ANALYSIS ON NETWORK GENERATED BY DISCRETE DYNAMICS SHU-HAO LIOU, CHIA-CHU CHEN](#) [International Journal of Modern Physics B](#)
Vol. 26, No. 04 1250023 (2012)
- (10) [Role of the Bell singlet state in the suppression of disentanglement](#)
Ru-Fen Liu and **Chia-Chu Chen**, **Phys. Rev. A** **74**, **024102** (2006)
- (11) [Analytic Proof of the Attractors of a Class of Cellular Automaton](#)
Ru-Fen Liu, **Chia-Chu Chen** **Phys. Lett. A**, **322**, **217** (2004)
- (12) [Generation and evolution of spin entanglement in nonrelativistic QED](#)
Ru-Fen Liu and **Chia-Chu Chen**, **Phys. Rev. A** **68**, **044302** (2003)
- (13) [Homogeneous States of Finite Periodic CA with GKL Rules](#)
arXiv/nlin-0209005 Ru-Fen Liu, **Chia-Chu Chen** (2002)
- (14) [Conditions to Control Chaotic Dynamics by Weak Periodic Perturbation](#)
Rue-Ron Hsu, Han-Tzong Su, Jyh-Long Chern, and **Chia-Chu Chen**

- Phys. Rev. Lett. 78, 2936 (1997)**
- (15) Chaotic Map on Rational Numbers, **Chia-Chu Chen** (2000)
 - (16) Quantum Version of Birkhoff Theorem in QED, **C. C. Chen** (2000)
 - (17) Stochastic Response of the Stable Period-p Orbits in One-Dimensional Noisy Map System, T.N. Wang, R.R. Hsu, **C.C. Chen** and H.T.Su **Chinese J. Phys. 37, No.6 535-546 (1999)**
 - (18) Stochastic Response, Cascading and Control of Colored Noise in Dynamical System, R.R. Hsu, J.L. Chern, W.F. Lin, **C.C. Chen** and H.T.Su **Chinese J. Phys. 37, No.3 292-301 (1999)**
 - (19) The Statistical Thermodynamics of Steady State, W.J. Tseng and **C.C. Chen** **Phys.Lett.A 246,52-54 (1998)**
 - (20) Implications of $b \rightarrow s\gamma$ decay measurements on the Higgs sector of the $SU(3)_C \times SU(3)_F$ -NFC model Chilong Lin, **Chia-Chu Chen**, and Chien-Er Lee **Phys. Rev. D 58, 075009 (1998)**
 - (21) Conditions to Control Chaotic Dynamics by Weak Periodic Perturbation
 - (22) Rue-Ron Hsu, Han-Tzong Su, Jyh-Long Chern, and **Chia-Chu Chen** **Phys. Rev. Lett. 78, 2936 (1997)**
 - (23) Diffusion coefficient of piecewise linear maps **Chia-Chu Chen, Phys. Rev. E 51, 2815 (1995)**
 - (24) Topological quantum phase and multipole moment of neutral particles **Chia-Chu Chen Phys. Rev. A 51, 2611 (1995)**
 - (25) Higher Moment in Conformal Turbulence, **Chia-Chu Chen, Mod. Phys. Lett.A9, 123-131 (1994)**
 - (26) Threshold Effects on Synchronization of Pulsed-Coupled Oscillators, Chia-Chu Chen **Phys. Rev.E49, 2668-2672 (1994)**
 - (27) Gauge Independence of Interelectronic Potentials, **Chia-Chu Chen Journal of Physics B26, 599-611 (1993)**

Research Projects and Funding

- (1) Investigation of Electric Current and Spin Current in Nanosystems and Related topics in the Question of Decoherence (**Applying**)
- (2) Entanglement and Decoherence (NSC97-2112-M-006-003-MY2) NT\$1677000 (~US\$50000)
- (3) Instability of Entanglement and Open Quantum Systems (NSC 96-2112-M-006-009-) NT\$837000(~US\$28000)
- (4) Investigation on Quantum Entanglement in Cavity QED (NSC 95-2112-M-006-014-) NT\$423000 (~US\$15000)
- (5) Studies on Decoherence Effects and Structure of Entanglement (NSC

94-2112-M-006-016-)

NT\$693000 (~US\$23000)

(6) Investigation on Quantum Informations (II) (NSC 93-2112-M-006-006-) NT\$673600
(~US\$22000)

(7) Investigation on Quantum Informations (I) (NSC 92-2112-M-006-009-)
NT\$1146000 (~US\$38000)

(8) Nonlinear Phenomena in Quantum System (II) (NSC 91-2112-M-006-020-)
NT\$564900 (~US\$28000)

(9) Nonlinear Phenomena in Quantum System (I) (NSC 91-2112-M-006-014)
NT\$564900 (~28000)

(10) Investigation on Many-Body System (NSC 89-2112-M-006-009-)
NT\$438800 (~US\$15000)