

**Teh Lin**  
**Curriculum Vitae**

**Full Name:** Teh Lin

**Work Address**

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**OBJECTIVE**

Using Monte Carlo calculations to predict 3D conformal and IMRT dose delivery, IGRT investigation to eliminate organ motion effect and utilizing ultrahigh intensity laser produced plasma to perform proton radiation therapy for cancer treatment.

**EDUCATION**

**University of Michigan** Ann Arbor, MI

*Doctor of Philosophy* May 2005

*Electrical Engineering and Computer Science*

Thesis Topic: Mechanism and Control of High-Intensity-Laser-Driven Ion Acceleration

Thesis Advisor: Prof. Donald Umstadter

**University of Michigan** Ann Arbor, MI

*Master of Science* December 2003

*Electrical Engineering and Computer Science*

**National Tsing Hua University** Hsinchu, Taiwan

*Bachelor of Science* June 2000

*Nuclear Science*

**CLINICAL and ACADEMIC APPOINTMENTS**

**Fox Chase Cancer Center**, Philadelphia, PA

*Associate Member/Clinical Medical Physicist* Sept. 2008~present

*Research associate/ Resident of Medical Physicist* 2005~2008

*Chief Resident of Medical Physicist* Aug. 2007~Mar. 2008

- Utilizing Monte Carlo method to estimate the delivered dose information of radiation therapy.
- Gated IMRT high dose rate delivery.
- LINAC and CMS treatment planning system commissioning, quality assurance and calibration.
- External beam treatment plan generation and QA implementation.
- CBCT & 4DCT- guided organ motion study.
- Brachytherapy (HDR, LDR- prostate seed implant) planning and applications.

- Stereotactic Radiosurgery/therapy planning and applications.
- Clinical service implementation and dosimetry.
- Exploring the possibility of laser-driven proton radiation therapy.
- Performing the experiments of proton acceleration by ultra-high power lasers.

**FOCUS Center, University of Michigan Ann Arbor, MI**

*Research Assistant 2001-2005*

- Investigating the behavior and physics of heavy charged particles produced from the interaction between terawatt laser interaction and thin film targets.
- Found the optimization of proton acceleration from high-intensity-laser and solid target interaction.
- Exploring high power laser prepulse effects on proton acceleration.
- Establish a 1-D model of electron angular distribution from ultrahigh-intensity laser and solid target interaction.
- Master on Ultrahigh-intensity-laser pulse diagnostics, including developing third-order autocorrelators, second-order autocorrelators, and FROG.
- Maintain and Operate a 450 fs, 10 TW, Nd-Glass laser.
- Master on particles diagnostics and spectrum analysis of laser plasma interactions.
- Collaboration with *Oak Ridge National Lab, USA* to study the activation ability for the ion beams generated from ultraintense-laser and solid targets interactions.
- Collaboration with *Department of Radiation Oncology, University of Michigan Medical School* to study the application of proton source from terawatt laser-plasma interaction to achieve proton therapy that is designed to radiate cancer cells.

**Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan**

*Research Assistant 2000-2001*

- Studying interaction phenomena from ultrafast laser pulse and solid target.

## **HONORS**

- University of Michigan-EECS Dept. first year graduate student summer scholarship, 2002
- University of Michigan-*FOCUS* center graduate student research assistant scholarship, 2002-2005
- Invited talk: 2004 AAC, Long Island, NY, “Mechanism and Control of High-Intensity-Laser-Driven Proton Beams”
- Invited talk: 2007 DVC meeting, Philadelphia, PA, “Dosimetric Investigation of High Dose Rate, Gated IMRT”

## **PROFESSIONAL ACTIVITIES**

American Association of Physicists in Medicine (AAPM), member

American Physical Society (APS), member

Student chair, University of Michigan-Dept. of EECS Taiwanese student association

## BOARD CERTIFICATION

American Board of Radiology (ABR) eligible

## LANGUAGES

Fluent in English and Chinese

## COMPUTER SKILLS

Monte Carlo (MCSIM), LabView, Origin, CorelDraw, V++, Ocean Optics, LaTeX, Excel, Mathematica

## PUBLICATIONS

1. K.Flippo, A. Maksimchuk, S. Banerjee, K. Nash, V. Wong, T. Lin, K. Nemoto, V. Yu. Bychenkov, Y. Sentoku, G.Mourou, D. Umstadter, Study of Energetic Ion Generation from High-Intensity-Laser Dense-Plasma Interactions, **AIP** Conference Proceedings 647, 255 (2002)
2. T. Lin, K. Flippo, M, Rever, A, Maksimchuk, D, Umstadter, Characteristics of High-Intensity Laser Produced Proton Beams From a Thin-Film Target, 2003 **APS, DPP**
3. T. Lin, K. Flippo, M. Rever, A. Maksimchuk, D. Umstadter, Mechanism and Control of High-Intensity-Laser-Driven Proton Beams, **AIP** Conference Proceedings 737, 595-604(2004)
4. T. Lin, A, Maksimchuk, D, Umstadter, Electron Angular Distribution from Ultrahigh-Intensity-Laser and Solid Targets Interaction, 2004 **APS, DPP**
5. T. Lin, K. Flippo, A, Maksimchuk, D, Umstadter, Measurements of electrostatic potential changes and magnetic fields generated from ultra-high-intensity laser and thin-film target interaction by the observing angular distribution of fast electrons, 2005 **APS, DPP**
6. T. Lin, A, Maksimchuk, D, Umstadter, Electron Angular Distribution from Relativistic-Intensity-Laser and Solid Target Interactions, *2005 Quantum Electronics and Laser Science Conference (QELS) (IEEE Cat. No. 05CH37696)*, 2005, pt. 3, p 1816-18 vol. 3.
7. T Lin, J Fan, J Li, Z Chen, W Luo, and C Ma, The Effect of MLC Geometry On Monte Carlo Simulated Beam Output for IMRT, *Med. Phys.* 33, 2141 (2006)
8. T Lin, J Fan, W Luo, J Li, Z Chen, and C Ma, Is It Safe to Switch Patients Between Different Linacs, *Med. Phys.* 33, 2117 (2006)
9. W Luo, J Li, J Fan, E Fourkal, Z Chen, T Lin, and C Ma, A Monte Carlo Study On Carbon RBE for Carbon Therapy, *Med. Phys.* 33, 2056 (2006)
10. C Ma, I Veltchev, E Fourkal, J Li, J Fan, T Lin, W Luo, and S Stathakis, Laser-Accelerated Proton Therapy: Target Chamber Design and Shielding Requirements, *Med. Phys.* **33**, 2117 (2006)
11. T. Lin, K. Flippo, D. Umstadter, I. Veltchev, W. Luo, E. Fourkal, J. Fan, and C.-M. Ma  
The Implementation of Ultrahigh Intensity Laser Based Proton Accelerator for Proton Therapy, 2006 **APS, DPP**
12. T. Matsuoka, A. Maksimchuk, T. Lin, O.V. Batishchev, A.A. Batishcheva and V.Yu. Bychenkov, Anomalous transmission of high contrast relativistically

intense short pulses through thin metal foils, *J. Phys. IV France* 133 (2006) 511-514

13. E Fourkal, I Veltchev, T Lin, and C Ma, Prepulse Effect and Maximum Energy of Protons Accelerated by High-Power Lasers, *Med. Phys.* **33**, 2285 (2006)
14. I Veltchev, E Fourkal, T Lin, and C Ma, A Laser System and Target Design for Proton Acceleration, *Med. Phys.* **33**, 2220 (2006)
15. T Lin, J Li, J Fan, L Jin, W Luo, R Price, L Chen, E Fourkal, and C Ma , Investigation of the Beam Penumbra Effect On IMRT Dose Conformity and Uniformity, *Med. Phys.* **34**, 2464 (2007)
16. T Lin, Y Chen, L Jin, J Fan, and C Ma, Investigation of Gated, High Dose Rate IMRT Step and Shoot Delivery, *Med. Phys.* **34**, 2626 (2007)
17. I Veltchev, T Lin, E Fourkal, J Fan, J Li, C Ma, S Orimo, and K Ogura, Beam of Laser-Accelerated Protons: Generation and Characterization, *Med. Phys.* **34**, 2631 (2007)
18. T Lin, K Flippo, D Umstadter, I Veltchev, J Fan, E Fourkal, C Ma, The Implementation of Ultrahigh Intensity Laser Based Proton Accelerator for Proton Therapy, *International Conference on the Use of Computers in Radiation Therapy proceeding , 2007*
19. J Fan, W Luo, E Fourkal, T Lin, J Li, I Veltchev, CM. Ma, Shielding design for a laser-accelerated proton therapy system, *Phys Med Biol.* 2007 Jul 7;**52**(13):3913-30
20. C.-M. Ma, I. Veltchev, E. Fourkal, J. Li, W. Luo, J. Fan, T. Lin and A. Pollack, A Laser Driven Proton Accelerator for Cancer Therapy, *Laser Phys.* **16** (2006) 639-646.
21. C.-M. Ma, E. Fourkal, I. Veltchev, J. Li, W. Luo, J. Fan, T. Lin and A. Pollack, Development of a laser-proton radiotherapy system, *International Conference on the Use of Computers in Radiation Therapy proceeding , 2007.*
22. T. Lin, Y. Chen, M. Hossain, J. Li, C.-M. Ma, Dosimetric investigation of high dose rate, gated IMRT, *Med. Phys.* **35**, 11, 5079-5087, 2008

