

## CURRICULUM VITAE

**NAME:** John Wai-Chiu Wong, Ph.D.  
**PLACE OF BIRTH:** Hong Kong  
**DATE OF BIRTH:** February 23, 1952  
**NATIONALITY:** Canadian, U.S. permanent resident  
**MARITAL STATUS:** Married (Patricia); two daughters (Lindsay, Casey).

**BUSINESS ADDRESS:** Department of Radiation Oncology and Molecular Radiation Sciences  
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**EDUCATION**

B.A.Sc. (honours): University of Toronto  
Faculty of Applied Science & Engineering  
Division of Engineering Science, 1970-1974

M.Sc.: University of Toronto  
Department of Medical Biophysics  
at the Hospital for Sick Children, 1974-1977  
Thesis: The Effects of Gravity on Mucous Clearance  
Supervisor: Norman Aspin, Ph.D.

Ph.D.: University of Toronto  
Department of Medical Biophysics  
at the Hospital for Sick Children, 1977-1978,  
Studies in Cystic Fibrosis; terminated due to change in research interest

University of Toronto  
Department of Medical Biophysics  
at the Princess Margaret Hospital, 1978-1982  
Thesis: A new approach to photon dose calculations  
in radiotherapy treatment planning  
Supervisors: Harold E. Johns, Ph.D. and R. Mark Henkelman, Ph.D.

## CLINICAL PHYSICS POSITIONS

Oct 1, 2004 - present

Director of Division of Medical Physics, Department of Radiation Oncology and Molecular Radiation Sciences, School of Medicine, Johns Hopkins University.

April 2004 - Aug 2004

Corporate Medical Director of Research Institute,  
William Beaumont Hospital, Royal Oak, Michigan

October, 2000 to August, 2004

Director, All Technical Services, Department of Radiation Oncology,  
William Beaumont Hospital, Royal Oak, Michigan

June 1992 to present

Director, Clinical Physics, Department of Radiation Oncology,  
William Beaumont Hospital, Royal Oak, Michigan

September, 1982 - May 1992

Clinical Physicist, Department of Radiation Oncology,  
Mallinckrodt Institute of Radiology, St. Louis, Missouri 63110

## ACADEMIC POSITIONS

Oct 1, 2005

- Present

Visiting Associate Professor, Department of Radiation Oncology and Molecular Radiation Sciences, School of Medicine, Johns Hopkins University, Baltimore, Maryland

Aug 2001

- Sept 2005

Adjunct Professor of Medical Biophysics, Department of Physics,  
Oakland University, Rochester Hills, Michigan

Aug 1995

- 2001

Adjunct Clinical Associate Professor of Medical Biophysics, Department of Physics,  
Oakland University, Rochester Hills, Michigan

June 1991

- May 1992

Associate Professor of Radiation Physics in Radiology,  
Mallinckrodt Institute of Radiology, Washington University, St. Louis

June 1991

- May 1992

Adjunct Associate Professor, Institute for Biomedical Computing, School of Medicine  
and in the Biomedical Engineering Program, Department of Electrical Engineering,  
Washington University, St. Louis

Aug 1985

- June 1991

Adjunct Assistant Professor in the Biomedical Engineering Program,  
Department of Electrical Engineering, Washington University, St. Louis

Sept. 1987

- June 1991

Adjunct Assistant Professor, Institute for Biomedical Computing,  
Washington University School of Medicine, St. Louis

June 1982

- June 1991

Assistant Professor of Radiation Physics in Radiology,  
Mallinckrodt Institute of Radiology, Washington University, St. Louis

## PROFESSIONAL AFFILIATIONS

1. 1984 - present, full member of the American Association of Physicists in Medicine (AAPM)
2. 2002, Board Certification with the American Board of Medical Physicists (ABMP)

## ACADEMIC ACTIVITIES and PROFESSIONAL AWARDS

1. 1990, faculty, AAPM Summer School, "Advances in Radiation Oncology Physics", University of Kansas, Lawrence, Kansas
2. 1992 - 1994, faculty of the Radiological Society of North American (RSNA) Refresher Course: "On-line Portal Imaging".
3. 1994 - 1999, chairman of the AAPM Task Group 58 to recommend on the clinical use of electronic portal imaging devices.
4. 1994 - present, ad hoc member for study sections of the NCI (US) - R01, SBIR, PPO, MRC(Canadian) and NCI (Canadian) and Dutch Cancer Society.

5. 1997 - 2001, member of the Radiation Study Section, National Cancer Institute, National Institute of Health.
6. 2001, George Eddelstyn Medal, Royal College of Radiology, UK.. George Eddelstyn Lecture : "IMRT: Challenges and Opportunities", York, UK.
7. 2002, 5<sup>th</sup> Nagalingam Suntharalingam Lecturer, Thomas Jefferson University, Philadelphia.
8. 2002, faculty, Refresher Course on "Image Guided Treatment Strategies", ASTRO, New Orleans.
9. 2002, member on the NCI/NIBIB panel on "The role of biological imaging in radiation oncology", Washington, DC, December, 2002.
10. 2003, Co-chairman, AAPM Task Group 104 on "The use of in-room kilovoltage x-ray sources for treatment verification"
11. 2003, member on the NCI panel on "Accelerated Partial Breast Irradiation", Washington, DC, January, 2003.
12. 2003, member of the Scientific Committee for the "First International Symposium on Extra-cranial Radiosurgery", Henry Ford Hospital (sponsor), Dearborn
13. 2003, 1<sup>st</sup> James A. Purdy Lecturer, Washington University, St. Louis.
14. 2003, faculty, AAPM Summer School, "Intensity Modulated Radiation Therapy", Colorado Spring, June, 2003
15. 2003, Lawrence Lanzl Award Lecture, AAPM Midwest Chapter, Loyola University, Chicago, November.
16. 2004, awarded Fellow of AAPM
17. 2004 - present, member, ASTRO Research Evaluation Committee
18. 2004 - present, member, Working Group on IGRT for the ASTRO Health Policy and Economics Committee
19. 2005, member, ASTRO Radiation and Cancer Biology Committee

## **GRANTS Awarded**

### **Public Agencies (Direct Cost only) :**

1. Principal Investigator, National Institute of Health (USA), Institutional Biomedical Research Support Grant; "Development of a new approach to photon dose calculation in radiotherapy", 1984 (\$7,500 -1 year) -- completed.
2. Co-investigator, National Institute of Health (USA), National Cancer Institute, Contract No. NCI-CM-47696; "Evaluation of High Energy Photon External Beam Treatment Planning", J.A. Purdy, Principal Investigator, 1984 (\$300,000 - 3 years) -completed.
3. Principal Investigator, National Institute of Health (USA), National Cancer Institute, R01CA41574; "Accurate Dose Calculations for Radiotherapy", 1985 (\$190,000 - 3 years)-- completed.
4. Co-investigator, National Institute of Health (USA), National Cancer Institute, Contract No. NCI-CM-47715; "Evaluation of High Energy Electron External Beam Treatment Planning", J.A. Purdy, Principal Investigator, 1986 (\$360,000 - 3 years)-- completed.
5. Principal Investigator, American Cancer Institute (USA), Institutional Grant; IN-36-Z-4, "An Areal Dosimeter for Quantitative Treatment Verification in Radiotherapy", 1986 (\$7,500 - 1 year) -- completed.
6. Principal Investigator, National Cancer Institute (USA), R01CA42993; "Plastic Scintillator as an Areal Dosimeter in Radiotherapy", 1987 (\$180,000 - 2 years) -- completed.
7. Co-investigator, National Institute of Health (USA), National Cancer Institute, RFP No. NCI-CM-97564-23; "Radiotherapy Treatment Planning Tools," James A. Purdy, Principal Investigator, 1989 (\$995,000 - 5 years) -- participation terminated due to professional relocation.
8. Principal Investigator, National Cancer Institute (USA), R01CA66074; "Dual beam imaging for treatment verification", Aug, 1995 (\$387,000 - 3 years) – completed.

9. Subcontract Investigator, National Cancer Institute (USA), R01CA57222; "Brachytherapy dosimetry using plastic scintillators", J. Williamson, Principal Investigator, 1996 (\$35,000 - 1 year contract ) -- completed.
10. Principal Investigator, National Cancer Institute (USA), R01CA76182; "Radiation therapy with active breathing control", June 1998 (\$522,000 - 4 years) – completed.
11. Co-investigator, Department of Defense Prostate Cancer Research Program, DAMD-17-98-1-8497, "An on-line tomographic guidance system for dose escalation in radiotherapy for adenocarcinoma of the prostate", D. A. Jaffray, Principal Investigator,  
Phase 1 awarded for September, 1998 (\$185,000 -, 2.5 years) - completed  
Phase 2 awarded, 2001, (\$300,000 – 2 years) – completed.
12. Co-investigator, National Cancer Institute/National Institute of Aging(USA), R21/R33, 1R21-CA88322 , "High Precision Image Guided Radiotherapy of the Prostate", D. A. Jaffray, Principal Investigator, 2001 awarded (\$1,600,000- 4 years) --- terminated with DAJ departure.
13. Co-investigator, National Cancer Institute(USA), R01CA89081, "Flat Panel Cone-Beam CT for Image Guided Radiotherapy", D.A. Jaffray, Principal Investigator, 2001 awarded (\$800,000 – 4 years) --- terminated with DAJ departure.
14. Principal Investigator, National Cancer Institute(USA), R01CA108449-01; "Image Guided Small Animal Radiation Research Platform", April 1, 2004, (\$1,5300,000 – 4 years).
15. Co-investigator, National Cancer Institute(USA),: "Validity of implanted markers in Image Guided Radiation Therapy", Todd McNutt, Principal Investigator, submitted, Oct, 2005.

#### **Institutional Research Funding (Direct Cost) :**

1. Principal Investigator, Research Institute (RC-08-792), William Beaumont Hospital, "Tumor Perfusion Imaging using Accelerator Generated O-15 in situ", 2000 (\$78,310 - 1 year).
2. Co-Principal Investigator, Breast Foundation (RC-08-018), William Beaumont Hospital, "Methods of Intensity Modulated Radiation Therapy for Breast Cancer", F.A. Vicini, Co-Principal Investigator. 2000 (\$593,000 – 5 years).
3. Co-investigator, Research Institute (RI-01-14), William Beaumont Hospital. "Analysis of Tumor Border Neovascularization and Tumor Cell Migration after Narrow Beam Irradiation", E.P. Armour, Principal Investigator, 2001 (\$79,886 - 1 year).
4. Co-investigator, Research Institute (RI-01-18), William Beaumont Hospital. "A New 3D Gel-dosimetry System for Clinical Verification of Highly Conformal Radiation Therapy Techniques", M. Oldham, Principal Investigator, 2001 (\$78,071 – 1 year).

#### **Industrial Funding (Direct Cost) :**

1. Co-Principal Investigator, AW (Alafi-Washington University) Company and Fiber Imaging (FI), Inc., "Feasibility Studies of a Treatment Verification and Quality Assurance Imaging Device", W.R. Binns, Co-Principal Investigator. 1987 (\$464,000 - 4 years) -- completed.
2. Co-investigator, Computerized Medical Systems, Inc., "Development of a Practical 3D Radiotherapy Treatment Planning System", J.A. Purdy, Principal Investigator, 1988 (\$220,000 - 3 years)—completed.
3. Principal Investigator, Fiber Imaging, Inc., "Clinical Evaluation of a Fiber-Optic Imaging System," 1990 (\$23,000 - 1 year) – completed.
4. Principal Investigator, Junian International, "Development of a prototype real time 2D plastic scintillator dosimetry system", June, 1994 (\$25,500 -- 1 year) -- completed.

5. Principal Investigator, ADAC Labs, "Development of software tools to enhance 3D treatment planning", Jan, 1995 (\$76,500 -- 2 years) -- completed.
6. Principal Investigator, Elekta Oncology Systems (previously Philips Medical Systems), "Implementation and Verification of Conformal Radiation Therapy, IMRT and Image Guidance", Oct., 1992 (\$1,950,000 - 12 years), - 6<sup>th</sup> extension to 2007 pending (\$200,000 per year, 3 years) --- transferred to Di Yan with relocation to Johns Hopkins University.
7. Principal Investigator, ADAC Labs, "Development of software planning tools for 4D Image Guided Adaptive Radiation Therapy", January 2001 (\$300,000 -- 3 years), - 2<sup>nd</sup> extension to 2007 pending (\$150,000 per year, 3 years) --- transferred to Di Yan with relocation to Johns Hopkins University.

### **Intellectual Property Activities**

Method and Apparatus for Controlling a Radiation Treatment Field, US Patent # 5,438,991. John Wong and Cedric Yu

Method and Apparatus for Delivering Radiation Therapy during Suspended Ventilation. US Patent application #09/424,431, John Wong, David Jaffray, Michael Sharpe and John Musslewhite.

X-ray Transparent Hospital Bed Compatible with Open Geometry Portable CT Scanners. US Patent # 6,675,415. John Wong

Cone Beam Computerized Tomography with a Flat Panel Imager, US Patent application #09/788,335, David Jaffray, Jeffrey Siewerdsen and John Wong

Image Guided Animal Radiation Treatment Apparatus, US Patent application #60/603,103, John Wong and Elwood Armour.

**RESEARCH PERSONNEL SUPERVISION****GRADUATE STUDENTS**

Eric D. Slessinger	M.Sc., 1982 - 1985, Thesis Title: An Investigation of a Technique to Quantitative Treatment Verification, St. Louis University, St. Louis, Missouri
Cedric Yu	Ph.D., 1983 - 1988, Thesis Title: Inhomogeneity Effects on Dose Deposition for Photon and Electron Beams, Washington University, St. Louis, Missouri.
Sam S. Hancock	Ph.D., 1986 - 1988, Thesis Title: Production and Dispersion of Secondary Charged Particles in Small Heterogeneities of Different Atomic Number for 6 MV and 18 MV X-rays, Medical College of Ohio, Toledo, Ohio
William S. Ge	M.Sc., 1987 - 1988, Thesis Title: A Two Dimensional Scintillation Dosimetry System, Washington University, St. Louis, Missouri
Yan Zhang	M.Sc. 1996 - 1997, Thesis Topic: Veiling glare in fluoroscopic portal imaging system, Oakland University, Rochester Hills, Michigan
Doug Drake	M.Sc, 1995 - 2000, Thesis Topic: Characterization of mirror-based and a:Si-based imaging systems for MV and kV imaging. Oakland University, Rochester Hills, Michigan
Brett Miller	M.Sc, 1997 - 2000, Thesis Topic: Clinical Implementation of Intensity Modulated Radiation Therapy, Oakland University, Rochester Hills, Michigan
Laura Pisani	Ph.D., 1995 - 2002, Thesis Topic: Dual Beam imaging for treatment verification, Oakland University, Rochester Hills, Michigan

**RESIDENT and FELLOW RESEARCH PROGRAM**

Mary Lee Graham, M.D.	Jan. - July 1989, Methods to analyze daily portal images for treatment verification, Mallinckrodt Institute of Radiology (Principal Mentor).
Karen Halverson, M.D.	Feb. - Aug. 1990, Evaluation of treatment verification in radiotherapy using an on-line imaging system, Mallinckrodt Institute of Radiology (Principal Mentor).
Jeff Michalski, M.D.	Mar. - July 1991, Incorporation of on-line image verification data for treatment planning dose re-calculation, Mallinckrodt Institute of Radiology (Principal Mentor).
Arthur Frazier, M.D.	July 1, 1993 - June 30, 1994, Dosimetry of the multileaf collimator in the presence of daily treatment setup variation, William Beaumont Hospital (Principal Mentor).
Mario Lacerna, M.D.	July 1, 1995 - June 30, 1996, Intensity Modulation for breast treatment, William Beaumont Hospital (Associate Mentor).
Ellen Ziaja, MD	July 1, 1996 - June 30, 1997, Adaptive Radiation Therapy, William Beaumont Hospital (Associate Mentor).
Vijay Kini, M.D.	July 1, 1997 - June 30, 1998, Planning evaluation of treatment with active breathing control, William Beaumont Hospital (Principal Mentor).
Robert Frazier, M.D.	July 1, 1999 – April 30, 2000, Planning and delivery of whole breast radiotherapy with active breathing control, William Beaumont Hospital (Principal Mentor).
Kathy Baglan, MD	July 1, 2000 – April 30, 2001, IMRT of whole breast and quadrant only radiation therapy, William Beaumont Hospital (Associate Mentor).

- Vicent Remouchamps, MD Mar 1, 2001 – Feb 20, 2003. The integration of active breathing control with intensity modulated radiation therapy for partial, whole and locoregional treatment of breast cancer (Principal Mentor).
- Quinten Black, MD Sep 1, 2001 – June 1, 2002. The use of PET-FDG imaging to improve target definition for lung cancer, William Beaumont Hospital (Associate Mentor).
- Dan Weed, MD Sep 1, 2002 – June 1, 2003. On-line image guidance strategies for accelerated partial breast irradiation, William Beaumont Hospital (Principal Mentor).
- Daniel Krauss, MD Sep 1, 2003 – June 1, 2004. MRI-based volumetric assessment of cardiac anatomy and dose reduction via active breathing control during irradiation for left-sided breast cancer (Associate Mentor).
- Erik Tryggestad, Ph.D. Dec 1, 2004 – present. Implementation of a clinical infra-structure for Adaptive Radiation Therapy.
- Jundong Huang, Ph.D. Dec 16, 2004 – present. kV dosimetry for small animal irradiation.
- Howard Deng, Ph.D. May 15, 2005 – present. kV treatment planning for small animal irradiation.

**PUBLICATIONS IN ARCHIVAL (PEER-REVIEWED) JOURNALS**

1. Wong, J.W., Keens, T.G., Wannamaker, E.M., Crozier, D.N., Levison, H. and Aspin, N.: The Effects of Gravity on Tracheal Mucous Transport Rates in Normal Subjects and in Patients with Cystic Fibrosis. *Pediatrics* 60, 146, 1977.
2. Basset, P.G., Wong, J.W. and Aspin, N.: An Interactive Computer System for Studying Human Mucociliary Clearance. *Computer in Biol. Med.* 9, 97, 1979.
3. Sturgess, J.M., Chao, J., Wong, J.W., Aspin, N. and Turner, J.A.P.: Cilia with Defective Radial Spokes - a Cause of Human Respiratory Disease. *N. Eng. J. of Med.* 300, 53, 1979.
4. Wong, J.W., Henkelman, R.M., Fenster, A., and Johns, H.E.: Second Scatter Contribution to Dose in a Cobalt-60 Beam. *Med. Phys.* 8(6), 755-782, 1981.
5. Wong, J.W. and Henkelman, R.M., Andrew, J.W., Van Dyk, J. and Johns, H.E.: Effect of Small Inhomogeneities on Dose in a Cobalt-60 Beam. *Med. Phys.* 8(6), 783-791, 1981.
6. Wong, J.W. and Henkelan, R.M.: Reconsideration of the Power-Law (Batho) Equation for Inhomogeneity Corrections. *Med. Phys.* 9(4), 521-530, 1982.
7. Wong, J.W. and Henkelman, R.M.: A New Approach to Ct Pixel-Based Photon Dose Calculations in Heterogeneous Media. *Med. Phys.* 10(2), 199-208, 1983.
8. Purdy, J.A., Wong, J.W. and Harms, W.B.: New Developments in Three Dimensional Planning, *Radiotherapy System Research (Japan)*, Vol.3, 1-25, 1986.
9. Yu, C.X., Wong, J.W. and Purdy, J.A.: Photon Dose Perturbations Due to Small Inhomogeneities. *Med. Phys.* 14, 78-83, 1987.
10. Yu, C.X., Ge, W.S. and Wong, J.W.: A Multi-Ray Model for Calculating Electron Pencil Beam Distribution. *Medical Physics*, 662-671, 1988.
11. Wong, J.W., Ying, X. and Binns, W.R.: Treatment Verifications and Patient Dose Estimations Using Portal Dose Imaging. *Radiotherapy System Research (Japan)*, Vol 5, No 3, 213-225, 1988.
12. Wong, J.W., Slessinger, E.D., Hermes, R., Offutt, C.J., Roy, T. and Vannier, M.: Portal Dose Images I: Quantitative Treatment Plan Verification. *Int. J. Rad. Oncol. Biol. Physics*, 18, 1455-1463, 1990.
13. Ying, X., Geer, L.Y. and Wong, J.W.: Portal Dose Images II: Patient Dose Estimation. *Int. J. Rad. Oncol. Biol. Physics*, 18, 1465-1475, 1990.
14. Wong, J.W., Binns, W.R., Cheng, A.Y., Geer, L.Y., Epstein, J.W., Klarmann, J. and Purdy, J.A.: On-Line Radiotherapy Imaging with an Array of Fiber-Optic Image Reducers. *Int. J. Rad. Oncol. Biol. Physics*, 18, 1477-1484, 1990.
15. Wong, J.W. and Purdy, J.A.: On Methods of Inhomogeneity Corrections for Photon Transport. *Medical Physics*, 17(4), 807-814, 1990.
16. Graham, M.L., Cheng, A.Y., Geer, L.Y., Binns, W.R., Vannier, M.W. and Wong, J.W.: A Method to Analyze 2-Dimensional Daily Radiotherapy Portal Images From an On-Line Fiber-Optic Imaging System. *Int. J. Radiat. Oncol. Biol. Phys.*, 20, 613-619, 1991.
17. Wong, J.W. (writing chair), National Cancer Institute High Energy Photon Treatment Planning Group: Role of Inhomogeneity Corrections in 3D Photon Treatment Planning. *Int. J. Rad. Oncol. Biol. Physics*, 21, 59-69, 1991.
18. Urie, M.M., Goitein, M., Doppke, K., Kutcher, J.G., LoSasso, T., Mohan R., Munzenrider, J.E., Sontag, M. and Wong, J.W.: Role of Uncertainty Analysis in 3D Photon Treatment Planning. *Int. J. Rad. Oncol. Biol. Physics*, 21, 91-107, 1991.
19. Masterson, M.E., Barest, G., Chui, C., Doppke, K.P., Epperson, R.D., Harms, W.B., Krippner, K., Mohan, R., Slessinger, E.D., Sontag, M.R., Urie, M.M., Wallace, R.E. and Wong, J.W.: Inter-Institutional Experience in Verification of External Photon Dose Calculations. *Int. J. Rad. Oncol. Biol. Physics*, 21,37-58, 1991.

20. Brown, A.P., Urie, M.M., Barest, G., Cheng, E., Coia, L., Emami, B.N., Galvin, J., Kutcher, J., Manolis, J., Wong, J.W. and Yahalom, J.: Three Dimensional Planning for Hodgkin's Disease. *Int. J.Rad. Oncol. Biol. Physics*, 21, 205-215, 1991.
21. Laughlin, J.S., Goitein, M., Purdy, J.A. and Sontag, M.R. (writing chairs), (Wong as member of) National Cancer Institute High Energy Photon Treatment Planning Group: Evaluation of High Energy Photon External Beam Treatment Planning: Project Summary. *Int. J. Rad. Oncol. Biol. Physics*, 21, 3-8, 1991.
22. Sontag, M.R. and Purdy, J.A. (writing chairs), (Wong as member of) National Cancer Institute High Energy Photon Treatment Planning Group: State of the Art of External Photon Beam Radiation Treatment Planning. *Int. J. Rad. Oncol. Biol. Physics*, 21, 9-23, 1991.
23. Mohan, R. (writing chair), (Wong as member of) National Cancer Institute High Energy Photon Treatment Planning Group: Three-Dimensional Dose Calculations for Radiation Treatment Planning. *Int. J. Rad. Oncol. Biol. Physics*, 21, 25-36, 1991.
24. Tepper, J.E. and Shank, B. (writing Chairs), (Wong as member of) National Cancer Institute High Energy Photon Treatment Planning Group: 3-D Display in Planning Radiation Therapy: A Clinical Perspective. *Int. J. Rad. Oncol. Biol. Physics*, 21, 79-89, 1991.
25. Halverson, K.J., Leung, T.C., Gerber, R.L., Weinhaus, M.S. and Wong, J.W.: "Study of Treatment Variation in the Radiotherapy of Head and Neck Tumors Using a Fiber-Optic On-Line Radiotherapy Imaging System." *Int. J. Radiat. Oncol. Biol. Phys.*, 21, 1327-1336, 1991.
26. Perera, H., Williamson, J.F., Monthofer, S.P., Binns, W.R., Klarmann, J., Fuller, G.L. and Wong, J.W.: "Rapid Two-Dimensional Dose Measurement in Brachytherapy Using Plastic Scintillator Sheet: Linearity, Signal-to-Noise Ratio, and Energy Response Characteristics. *Int. J. Radiat. Oncol. Biol. Phys.*, 23, 1059-1069, 1992.
27. Boyer, A.L., Antonuk, L., Fenster, A., Van Herk, M., Meertens, H., Munro, P., Reinstein, L. and Wong, J.: A Review of Electronic Portal Imaging Devices (EPIDs). *Medical Physics*, 19, 1-16, 1992.
28. Williamson, J.F., Li, Z. and Wong, J.W.: One-Dimensional Scatter-Integration Method for Brachytherapy Dose Calculations near Bounded Heterogeneities. *Medical Physics*, accepted for publication, 1992.
29. Shiu, A., Tung, S., and Hogstrom, K. (MD Anderson Hospital), Wong, J.W., Gerber, R., Harms, W. and Purdy, J. (Washington University, St. Louis), Ten-Haken, R., McShan, D. and Frass, B. (Univ. of Michigan, Ann Arbor): Verification Data for Electron beam Algorithms. *Medical Physics*, 19, 623-637, 1992.
30. Wong, J.W., Cheng, A.Y., Binns, W.R., Epstein, J.W., Klarmann, J. and Perez, C.A: Development of a Second Generation Fiber-Optic On-Line Image Verification System. *Int. J. Radiat. Oncol. Biol. Phys.*, 26: 311-320, 1992.
31. Yu, C.X. and Wong, J.W.: 3D Implementation of the ETAR Method Using FFT. *Medical Physics*, 20: 627-632, 1993.
32. Michalski, J.M., Wong, J.W., Gerber, R.L., Yan, D., Cheng, A.Y., Graham, M.L., Renna, M.A., Sawyer, P.J. and Perez, C.A.: The Use of On-Line Image Verification to Estimate the Variation in Radiation Therapy Dose Delivery. *Int. J. Radiat. Oncol. Biol. Phys.*, 27: 707-716, 1993.
33. Wong, J.W., Gerber, R.L., Michalski, J.M., Graham, M.L., Halverson, K.J., Grigsby, Renna, M., Sawyer, P. and Perez, C.A.: On-Line Image Verification in Radiation Therapy: An Early USA Experience, *Medical Progress Through Technology*, 19: 43-54, 1993.
34. Michalski, J., Wong, J., Bosch, W., Yan, D., Cheng, A., Gerber, R., Graham, M., Halverson, K., Low, D., Valentini, R. and Piephoff, J.: Evaluation of Two Methods of Anatomical Alignment of Radiotherapy Portal Images, *Int. J. Radiat. Oncol. Biol. Phys.*, 27:1199-1206, 1993.
35. Du, M.N., Yu, C.X., symons, M. Yan, D., Taylor, R., Matter, R.C., Gustafson, G., Martinez, A. and Wong, J.W.: A multileaf collimator field prescription preparation system for conventional radiotherapy. *Int. J. Radiat. Oncol. Biol. Phys.*, 30, 707-714, 1994.
36. Yan, D., Wong, J.W., Gustafson, G. and Martinez, A.: A new model for "accept or reject" strategies in on-line and off-line megavoltage treatment evaluation. *Int. J. Radiat. Oncol. Biol. Phys.*, 31, 943-952, 1995.
37. Yu, C.X., Mackie, T.R. and Wong, J.W.: Photon Dose Calculation Incorporating Explicit Electron Transport. *Med. Phys.*, 22, 1157-1165, 1995.

38. Frazier, A., Du, M., Wong, J., Vicini, F., Taylor, R., Yu, C., Matter, R., Martinez, A. and Yan, D.: Dosimetric evaluation of the conformation of the multileaf collimator to irregularly shaped fields. *Int. J. Radiat. Oncol. Biol. Phys.*, 33, 1229-1238, 1995.
39. Frazier, A., Yan, D., Du, M., Wong, J., Vicini, F., Matter, R., Joyce, M. and Martinez, A.: Effects of treatment setup variation on Beam's eye view dosimetry for radiation therapy using the multileaf collimator versus cerrobend block. *Int. J. Radiat. Oncol. Biol. Phys.*, 33, 1247-1256, 1995.
40. Jaffray, D.A., Chawla, K. Yu, C.X. and Wong, J.W.: Dual-beam radiographic verification of radiotherapy field placement. *Int. J. Radiat. Oncol. Biol. Phys.*, 33, 1273-1280, 1995.
41. Wong, J.W., Yan, D., Michalski, J., Graham, M., Halverson, K., Harms, W. and Purdy, J.: The cumulative verification image analysis tool for off-line evaluation of portal images. *Int. J. Radiat. Oncol. Biol. Phys.*, 33, 1301-1310, 1995.
42. Yu, C.X., Symons, M., Du, M and Wong, J.W.: A method for delivering intensity modulation using independent jaws and multileaf collimator. *Phys. Med. Biol.*, 40, 769-787, 1995.
43. Michalski, J., Graham, M., Bosch, W., Wong, J., Gerber, R., Cheng, A., Tinger, L., and Valicenti, R.: Prospective clinical evaluation of an electronic portal imaging device. *Int. J. Radiat. Oncol. Biol. Phys.*, 34, 943-951, 1996.
44. Cheng, A.Y., Harms, W.B., Gerber, R.L., Wong, J.W. and Purdy, J.A.: Systematic verification of three-dimensional electron beam dose calculation algorithm. *Med. Phys.*, 23, 685-693, 1996.
45. Yan, D., Vicini, F., Wong, J. and Martinez, A.: Adaptive radiation therapy. *Phys. Med. Biol.*, 42: 123-132, 1997.
46. Yan, D., Wong, J., Vicini F., Michalski, J., Pan, C., Frazier, A. and Martinez, A.: Adaptive modification of treatment planning to minimize the deleterious effect of treatment setup error. *Int. J. Radiat. Oncol. Biol. Phys.*, 38: 197-206, 1997.
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**ABSTRACTS (Not Updated)**

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