

BARBARA ANN
KARMANOS
CANCER INSTITUTE

July 7, 2008

U.S. Nuclear Regulatory Commission, Region III
Materials Licensing Branch
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

Re: Request for Authorized Medical Physicist Status for License #21-04127-06

Dear Sir or Madame,

This letter is a request to grant Authorized Medical Physicist (AMP) Status to Qiang Liu, M.S., for Iridium-192 in a High Dose Rate Remote Afterloading Brachytherapy device. The NRC Form 313A (AMP) is enclosed along with supporting documents. If you require further assistance please feel free to contact our RSO Joe Rakowski at (313)745-1435. Thank you.

Sincerely



Mara Jelich
Manager, Ambulatory Operations
Karmanos Cancer Institute

**AUTHORIZED MEDICAL PHYSICIST TRAINING AND EXPERIENCE
AND PRECEPTOR ATTESTATION
[10 CFR 35.51]**

APPROVED BY OMB: NO. 3150-0120
EXPIRES: 10/31/2008

Name of Proposed Authorized Medical Physicist

Qiang Liu

- Requested Authorization(s) (check all that apply)
- 35.400 Ophthalmic use of strontium-90
 - 35.600 Teletherapy unit(s)
 - 35.600 Remote afterloader unit(s)
 - 35.600 Gamma stereotactic radiosurgery unit(s)

PART I -- TRAINING AND EXPERIENCE
(Select one of the three methods below)

*Training and Experience, including Board Certification, must have been obtained within the 7 years preceding the date of application or the individual must have obtained related continuing education and experience since the required training and experience was completed. Provide dates, duration, and description of continuing education and experience related to the uses checked above.

- 1. Board Certification**
 - a. Provide a copy of the board certification.
 - b. Go to the table in 3.c. and describe training provider and dates of training for each type of use for which authorization is sought.
 - c. Skip to and complete Part II Preceptor Attestation.
- 2. Current Authorized Medical Physicist Seeking Additional Authorization for use(s) checked above**
 - a. Go to the table in section 3.c. to document training for new device.
 - b. Skip to and complete Part II Preceptor Attestation
- 3. Education, Training, and Experience for Proposed Authorized Medical Physicist**
 - a. Education: Document master's or doctor's degree in physics, medical physics, other physical science, engineering, or applied mathematics from an accredited college or university.

Degree	Major Field
College or University	

- b. Supervised Full-Time Medical Physics Training and Work Experience in clinical radiation facilities that provide high-energy external beam therapy (photons and electrons with energies greater than or equal to 1 million electron volts) and brachytherapy services.

Yes. Completed 1 year of full-time training in medical physics (for areas identified below) under the supervision of _____ who meets the requirements for an Authorized Medical Physicist.

AND

Yes. Completed 1 year of full-time work experience in medical physics (for areas identified below) under the supervision of _____ who meets the requirements for an Authorized Medical Physicist.

AUTHORIZED MEDICAL PHYSICIST TRAINING AND EXPERIENCE AND PRECEPTOR ATTESTATION (continued)

3. Education, Training, and Experience for Proposed Authorized Medical Physicist (continued)

b. Supervised Full-Time Medical Physics Training and Work Experience (continued)

If more than one supervising individual is necessary to document supervised training, provide multiple copies of this page.

Description of Training/ Experience	Location of Training/License or Permit Number of Training Facility/Medical Devices Used+	Dates of Training*	Dates of Work Experience*
Medical Physics			
Performing sealed source leak tests and inventories			
Performing decay corrections			
Performing full calibration and periodic spot checks of external beam treatment unit(s)			
Performing full calibration and periodic spot checks of stereotactic radiosurgery unit(s)			
Performing full calibration and periodic spot checks of remote afterloading unit(s)			
Conducting radiation surveys around external beam treatment unit(s), stereotactic radiosurgery unit(s), remote after loading unit(s)			

Supervising Individual**

License/Permit Number listing supervising individual as an authorized Medical Physicist

for the following types of use:

- Remote afterloader unit(s)
 Teletherapy unit(s)
 Gamma stereotactic radiosurgery unit(s)

+ Training and work experience must be conducted in clinical radiation facilities that provide high-energy external beam therapy (photons and electrons with energies greater than or equal to 1 million electron volts) and brachytherapy services.

* 1 year of Full-time medical physics training and 1 year of full time work experience cannot be concurrent.

** If the supervising medical physicist is not an authorized medical physicist, the licensee must submit evidence that the supervising medical physicist meets the training and experience requirements in 10 CFR 35.51 and 35.59 for the types of use for which the individual is seeking authorization.

AUTHORIZED MEDICAL PHYSICIST TRAINING AND EXPERIENCE AND PRECEPTOR ATTESTATION (continued)

3. Education, Training, and Experience for Proposed Authorized Medical Physicist (continued)

c. Describe training provider and dates of training for each type of use for which authorization is sought.

Description of Training	Training Provider and Dates		
	Remote Afterloader	Teletherapy	Gamma Stereotactic Radiosurgery
Hands-on device operation	In-service by Nucletron on 6/27/08 Device operation & Treatment Console operation between Jan-June 2008		
Safety procedures for the device use	In-service by Nucletron on 6/27/08. Safety procedures & emergency procedures.		
Clinical use of the device	Inservice by Nucletron on 1/11/08. Participation by Physicist on various occasions between Jan.-June 2008		
Treatment planning system operation	Participation by Physicist for multiple treatment plans for patients between Jan.-June 2008.		

Supervising Individual License/Permit Number listing supervising individual as an authorized Medical Physicist
If training is provided by Supervising Medical Physicist, (If more than one supervising individual is necessary to document supervised training, provide multiple copies of this page.)

ZUBIN BHARUCHA.

for the following types of use:

- Remote afterloader unit(s) Teletherapy unit(s) Gamma stereotactic radiosurgery unit(s)

If Applicable:

Authorization Sought	Device	Training Provided By	Dates of Training
35.400 Ophthalmic Use of strontium-90			

d. Skip to and complete Part II Preceptor Attestation.

AUTHORIZED MEDICAL PHYSICIST TRAINING AND EXPERIENCE AND PRECEPTOR ATTESTATION (continued)

PART II – PRECEPTOR ATTESTATION

Note: This part must be completed by the individual's preceptor. The preceptor does not have to be the supervising individual as long as the preceptor provides, directs, or verifies training and experience required. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

First Section

Check one of the following:

1. Board Certification

I attest that Qiang Liu has satisfactorily completed the requirements in
Name of Proposed Authorized Medical Physicist
10 CFR 35.51(a)(1) and (a)(2).

OR

2. Education, Training, and Experience

I attest that _____ has satisfactorily completed the 1-year of full-time
Name of Proposed Authorized Medical Physicist
training in medical physics and an additional year of full-time work experience as required by 10 CFR 35.51(b)(1).

AND

Second Section

Complete the following:

I attest that Qiang Liu has training for the types of use for which authorization
Name of Proposed Authorized Medical Physicist
is sought that include hands-on device operation, safety procedures, clinical use, and the operation of a treatment planning system.

AND

Third Section

Complete the following:

I attest that Qiang Liu has achieved a level of competency sufficient to
Name of Proposed Authorized Medical Physicist
function independently as an Authorized Medical Physicist for the following:

- 35.400 Ophthalmic use of strontium-90 35.600 Teletherapy unit(s)
- 35.600 Remote afterloader unit(s) 35.600 Gamma stereotactic radiosurgery unit(s)

AND

Fourth Section

Complete the following for preceptor attestation and signature:

I meet the requirements in 10 CFR 35.51, or equivalent Agreement State requirements for Authorized Medical Physicist for the following:

- 35.400 Ophthalmic use of strontium-90 35.600 Teletherapy unit(s)
- 35.600 Remote afterloader unit(s) 35.600 Gamma stereotactic radiosurgery unit(s)

Name of Preceptor <u>ZUBIN BHARUCHA</u>	Signature <u>Z. Bharucha</u>	Telephone Number <u>313-745-2464</u>	Date <u>6/30/2008</u>
License/Permit Number/Facility Name			

Qiang Liu, M.Sc.

Radiation Oncology, Karmanos Cancer Institute, 4100 John R, Detroit, MI 48201

313-745-2076, liuq@karmanos.org

EDUCATION

Wayne State University, Detroit, MI (2003-2004)

M. Sc., Radiological Physics

University of New Brunswick, Fredericton, NB, Canada (2001-2003)

M. Sc., Physics (Molecular Spectroscopy)

Beijing Normal University, Beijing, P.R. China (1993-1997)

B. Sc., Physics

EMPLOYMENT/EXPERIENCE

Karmanos Cancer Institute, Detroit MI (2007-Present)

Radiation Physicist

Beth Israel Deaconess Medical Center, Boston MA (2006-2007)

Medical Physicist/Dosimetrist

Bethesda Regional Cancer Treatment Center, Greenville, MS (2005-2006)

Medical Physicist

AWARDS

Board of Governors Merit Award, University of New Brunswick, 2001

Outstanding Intern Student, Beijing Normal University, 1996

Academy Excellence Awards, Beijing Normal University, 1995, 1996

PEER-REVIEWED JOURNAL PUBLICATIONS

1. Y.N. Cheng, C.Y. Hsieh, J. Neelavalli, **Q. Liu**, M.S. Dawood, E.M. Haacke, "A Complex Sum Method of Quantifying Susceptibilities in Cylindrical Objects: the First Step Toward Quantitative Diagnosis of Small Objects in MRI," *Magn. Reson. Imaging*. 25, 1171-1180 (2007)
2. **Q. Liu**, P. McDermott, J. Burmeister, "Effect of Respiratory Motion on the Delivery of Breast Radiotherapy using SMLC Intensity Modulation," *Med. Phys.* 34, 347-351 (2007)
3. E.M. Haacke, Y.N. Cheng, M.J. House, **Q. Liu**, J. Neelavalli, R. Ogg, A. Khan, M. Ayaz, W. Kirsch, and A. Obenaus, "Imaging Iron Stores in the Brain using Magnetic Resonance Imaging," *Magn. Reson. Imaging*. 23, 1-25 (2005)
4. L.-H. Xu, **Q. Liu**, R.D. Suenram, F.J. Lovas, A.R. Hight Walker, J.O. Jensen and A.C. Samuels, "Rotational Spectra, Conformational Structures and Dipole Moments of Thiodiglycol by Jet-Cooled FTMW and Ab Initio Calculations," *J. Mol. Spectrosc.* 228, 243-250 (2004).
5. Z.-D. Sun, **Q. Liu**, R.M. Lees, L.-H. Xu, M.Yu. Tretyakov and V. Dorovskikh, "Saturation-Dip Measurements in the $2\nu_2$ Overtone Band of OCS with a CO_2 -Laser/Microwave Sideband Spectrometer," *Appl. Phys. B*. 78, 791-795 (2004).

6. Z.-D. Sun, **Q. Liu**, R.M. Lees, L.-H. Xu, V. Dorovskikh and M.Yu. Tretyakov, "Dual-Mode CO₂-Laser/Microwave-Sideband Spectrometer with Broadband and Saturation Dip Detection for CH₃OH," Rev. Sci. Instrum. 75, 1051-1060 (2004).
7. R.D. Suenram, D.F. Plusquellic, F.J. Lovas, A.R. Hight Walker, **Q. Liu**, L.-H. Xu, J.O. Jensen and A.C. Samuels, "Rotational Spectra, Conformational Structures and Dipole Moments of 2-(Ethylthio) ethanol by Jet-Cooled FTMW and Ab Initio Calculations," J. Mol. Spectrosc. 223, 9-19 (2004).

Wayne State University

Upon the recommendation of
The Graduate Faculty of the School of Medicine
The Board of Governors hereby confers upon

Qiang Liu

The degree

Master of Science

With a Major in Radiological Physics

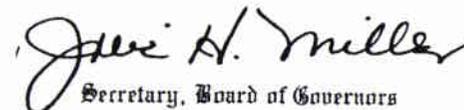
In recognition of the achievements specified for this degree

December 16, 2004

Detroit, Michigan




President


Secretary, Board of Governors

Universitas Novi Brunsvici.



Comitiis habitis Vicesimo Tertio die Octobris
Anno Domini Bis Millesimo Tertio

Qiang Liu

*Omnibus muneribus quae statutis postulantiur rite peractis auctoritate
qua Praeses ac Collegium Gubernatorum funguntur,
Magister in Scientia in Studiis Physicis
creatus et pronuntiatus est et in omnia iura, privilegia,
insignia admissus.*

*In cuius rei testimonium, Nos hisce litteris,
Universitatis sigillo munitis, manum apposuimus.*



[Signature]

Comitiarius

[Signature]

Senex

[Signature]

Tubularius

[Signature]

Senex



ABR The American Board of Radiology

DIAGNOSTIC RADIOLOGY ■ RADIATION ONCOLOGY ■ RADIOLOGIC PHYSICS

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Chapel Hill, North Carolina
Anthony V. Proto, M.D.
Richmond, Virginia
Theodore C. Roberts, M.D.
La Jolla, California
Daniel L. Strife, M.D.
Cincinnati, Ohio
Douglas H. Yock, Jr., M.D.
Minneapolis, Minnesota

Radiation Oncology

Michael Kian Ang, M.D., Ph.D.
Houston, Texas
Kath A. Erickson, M.D.
Milwaukee, Wisconsin
Bruce G. Haffty, M.D.
New Brunswick, New Jersey
Larry E. Kun, M.D.
Memphis, Tennessee
Christopher G. Willett, M.D.
Durham, North Carolina
Anthony L. Zietman, M.D.
Boston, Massachusetts

Radiologic Physics

Donald Frey, Ph.D.
Charleston, South Carolina
Jeffrey S. Ibbott, Ph.D.
Houston, Texas
Richard L. Morin, Ph.D.
Jacksonville, Florida

June 1, 2008

ABRID P4254 / PT / 33 / 12
Confirmation # C78AA07E

Qiang Liu, MSc
Radiation Oncology
Karmanos Cancer Institute
4100 John R
Detroit, MI 48201

Dear Mr. Liu:

I am pleased to inform you that you passed the oral examination held on May 31 to June 2, 2008. The American Board of Radiology grants you its Certificate in Therapeutic Radiologic Physics. This is a ten-year time-limited certificate.

The certificate will be sent to the above address in approximately three months from our printer, Jim Henry, Inc. Your name will appear on the certificate as shown above. If you wish your name to appear differently or you have an address change, please notify the Board office in writing by July 01, 2008. Your name and demographic information will be included in a Directory published by the American Board of Medical Specialties. It is your responsibility to notify other local and state or national organizations of your certification.

Important information about your Maintenance of Certification process is enclosed. Please review it and respond as requested.

Personally and on behalf of the Board of Trustees of The American Board of Radiology, I wish to congratulate you for this distinguished achievement. You have accomplished one of the most significant milestones in your career.

Sincerely,

Gary J. Becker, MD

Enclosures

Executive Director: Gary J. Becker, M.D.
Robert R. Hattery, M.D., Senior Advisor to the Executive Director

Assistant Executive Directors: Primary Certification

Diagnostic Radiology: Anthony V. Proto, M.D.
Radiation Oncology: Bruce G. Haffty, M.D.
Radiologic Physics: Richard L. Morin, Ph.D.

Associate Executive Directors

Diagnostic Radiology: To be named
Radiation Oncology: Lawrence W. Davis, M.D.
Radiologic Physics: Stephen R. Thomas, Ph.D.
Administration: Jennifer Bosma, Ph.D.

Assistant Executive Directors: Maintenance of Certification

Diagnostic Radiology: James P. Borgstede, M.D.
Radiation Oncology: Larry E. Kun, M.D.
Radiologic Physics: G. Donald Frey, Ph.D.
Subspecialty Certification: George S. Bisset, M.D.



CERTIFICATE OF TRAINING

awarded to

Qiang Liu, Physicist

for completing the following course:

Physician Training - Overview for HDR Brachytherapy

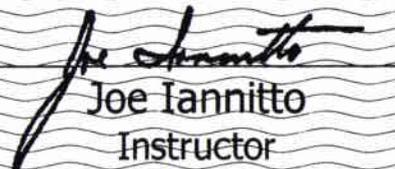
At Karmanos Cancer Center, Detroit, MI

Date

January 11, 2008

Presented by:

Nucletron Corporation, 8671 Robert Fulton Drive, Columbia, Maryland



Joe Iannitto
Instructor

Training for HDR Planning

Patient Name	MRN	Planning Date		Supervisor
Joel, Rhiannon	957014835	1/16/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Page, Janet	957013579	1/30/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Shute, Danielle	957017435	4/15/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Wilson, Annette	957015879	4/15/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Doughrity, Jacqueline	362522378	5/13/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Morrell, Ethel	800010855	6/7/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Woods, Cassandra	364505997	6/9/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Johnson, Brenda	957017973	6/13/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Barton, Catherine	276329814	6/24/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha
Ruvalcaba, Maria	957021525	6/26/2008	Sim, Planning, Calc Check, Treatment	Zubin Bharucha



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BARBARA ANN
KARMANOS
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