

**AMERICAN BOARD  
OF  
MEDICAL PHYSICS**



**INFORMATION BOOKLET**

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## ABMP Board of Directors, Examination Committee Chairs, and Staff

### 2017 ABMP BOARD OF DIRECTORS

<b>Chair</b>	Doug Morris, Ph.D.	<i>Bethesda, MD</i>
<b>Vice-Chair</b>	Jerrold T. Bushberg, Ph.D.	<i>Sacramento, CA</i>
<b>Secretary</b>	Bette Blankenship, M.S.	<i>San Diego, CA</i>
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	Kevin Buckley, M.S.	<i>Boston, MA</i>
	Michael Erdman, CHP, CMP	<i>Hershey, PA</i>
	Amir Huda, Ph.D.	<i>Fresno, CA</i>
	Lisa Lemen, Ph.D.	<i>Cincinnati, OH</i>
	Dimitris Mihailidis, Ph.D.	<i>Philadelphia, PA</i>
	Xiaohong Joe Zhou, Ph.D.	<i>Chicago, IL</i>

### EXAMINATION COMMITTEE CHAIRS

<b>Medical Health Physics</b>	Steven H. King, M.S.	<i>Hershey, PA</i>
<b>MRI Physics</b>	Doug Morris, Ph.D.	<i>Bethesda, MD</i>

### ABMP STAFF

<b>Executive Director</b>	Tomi Papanikolaou, M.S.	<i>San Antonio, TX</i>
<b>Test Consultant</b>	James Hecht, Ph.D.	<i>Credentialing Services, Inc.</i>

## PURPOSES OF THE BOARD

The American Board of Medical Physics is an independent, non-profit organization, which was incorporated in July 1988.

The objectives and purposes of the Board are as follows:

1. To establish minimum acceptable standards of professional knowledge, and improve the quality of practice of medical physics. For the purposes of the Board, medical physics is defined as the application of physics and related sciences to the clinical practice of medicine.
2. To develop standards and procedures for the certification of medical physicists.
3. To establish and evaluate qualifications of candidates requesting examination for voluntary certification in Medical Health Physics and/or Magnetic Resonance Imaging (MRI) Physics.
4. To arrange, control, and conduct examinations to test the competence of candidates for certification.
5. To grant and issue certificates in the field of medical physics to applicants who have been found qualified by the Board.
6. To encourage those who hold certificates to participate in Continuing Education (CE or CME) by monitoring and approving the accumulation of such credits on a renewing basis.
7. To maintain a registry of those medical physicists who have passed the examination and maintain their certification by accumulating CE (or CME) credits.
8. To serve the medical community and lay public by maintaining the ABMP website, [www.abmpexam.com](http://www.abmpexam.com), which provides up-to-date lists of ABMP diplomates, as well as providing information for medical physicists seeking initial certification or recertification.

## DEFINITION OF CERTIFICATION

The American Board of Medical Physics offers certification by examination for eligible candidates. Upon successfully passing the prerequisite examination (Part I) in General Medical Physics **or** Magnetic Resonance Science, **and** both written (Part II) **and** oral (Part III) specialty examinations in MRI Physics, or Medical Health Physics, candidates may identify themselves as Certified Medical Physicists, or Diplomates, of the American Board of Medical Physics. The certificate awarded by the Board is not a license, and therefore does not confer any legal qualification or privilege to practice medical physics.

## ELIGIBILITY REQUIREMENTS

The following minimum qualifications are required of candidates who wish to take the three-part American Board of Medical Physics examination. Certification by the ABMP is given in the following two specialties: **Medical Health Physics**, and **MRI Physics**. Admission to the examination will be determined by the Board of Directors.

For Certification in **Medical Health Physics**, the following three parts must be passed:

- **Part I\*** (General Medical Physics) – in order to be accepted for the Part I written examination, the following requirements must be met:
  1. Education – The applicant must possess a graduate degree in Physics, Medical Physics, or other appropriate and related field, from an accredited university. An official university transcript, translated into English if necessary, must be provided. For degrees that are not awarded by accredited universities, the transcript must also be accompanied by a document that provides an equivalence translation for the courses listed.
  2. Professional Experience – there is no experience requirement for Part I.
- **Part II** – in order to be accepted for the Part II written examination, the following requirements must be met:
  1. Professional Experience – The applicant must have participated in clinical residency training from an accredited program OR have been engaged in the practice of clinical medical physics, in a healthcare facility, under the supervision of a board-certified medical physicist for a minimum period of time (see Table 1) preceding the date of the Part II examination.
  2. Endorsement Letters - two letters must be submitted from those who are familiar with the applicant's experience (see "Verification of Qualifications").
- **Part III** – in order to be accepted for the Part III oral examination, the following requirements must be met:
  1. The candidate must have successfully passed Parts I and II, **and**
  2. Professional Experience – The applicant must have engaged in the practice of clinical medical physics for a minimum period of time preceding the date of the Part III examination. (See Table I). The experience for Medical Health Physics must be obtained as a provider of services in a healthcare facility.

**\*Note:** The ABMP will waive the Part I (General Medical Physics or MR Science) exam requirement for physicists who have already passed the Part I examination offered by the ABR (American Board of Radiology), the CCPM (Canadian College of Physicists in Medicine), or ABHP (American Board of Health Physics). A medical physicist who is certified by any of the above boards and is eligible to apply for certification in a subspecialty offered by the ABMP can apply directly for Part II examination in that subspecialty.

## ELIGIBILITY REQUIREMENTS (continued)

For Certification in **MRI Physics**, the following three parts must be passed:

- **Part I\*** (General Medical Physics OR Magnetic Resonance Science) – in order to be accepted for the Part I written examination, the following requirements must be met:

1. a) Education (for General Medical Physics exam) – The applicant must possess a graduate degree in Physics, Medical Physics, or other appropriate and related field, from an accredited university, OR

- b) Education (for Magnetic Resonance Science exam) – The applicant must possess a graduate degree in physical science involving nuclear magnetic resonance or MRI from an accredited university.

An official university transcript, translated into English if necessary, must be provided. For degrees that are not awarded by accredited universities, the transcript must also be accompanied by a document that provides an equivalence translation for the courses listed.

2. Professional Experience – there is no experience requirement for Part I

- **Part II** – in order for the applicant to be accepted for the Part II written examination, the following requirements must be met:

1. Professional Experience – The applicant must have participated in clinical residency training from an accredited program OR have been engaged in the practice of clinical medical physics or post-graduate MRI science, under the supervision of a board-certified medical physicist, for a minimum period of time (see Table 1) preceding the date of the Part II examination.

2. Endorsement Letters - two letters must be submitted from those who are familiar with the applicant's experience (see "Verification of Qualifications").

- **Part III** – in order for the applicant to be accepted for the Part II oral examination, the following requirements must be met:

1. The candidate must have successfully passed Parts I and II; and

2. Professional Experience - The applicant must have engaged in the practice of clinical medical physics or post graduate MRI science for a minimum period of time preceding the date of the Part III examination. (See Table I).

**\*Note:** The ABMP will waive the Part I (General Medical Physics or MRI Science) exam requirement for physicists who have already passed the Part I examination offered by the ABR (American Board of Radiology), the CCPM (Canadian College of Physicists in Medicine), or ABHP (American Board of Health Physics). A medical physicist who is certified by any of the above boards and is eligible to apply for certification in a subspecialty offered by the ABMP can apply directly for Part II examination in that subspecialty.

## PROFESSIONAL EXPERIENCE REQUIREMENTS

**\*\*\*Important note:** Only one-half of total training years will be credited towards professional experience. Applicants from clinical residency programs will receive full credit.

Highest Degree	Experience Required for Part II (Years)	Experience Required for Part III (Years)
M.S. (physical science or engineering)	4	6
M.S. ( <i>non-accredited</i> medical physics or MRI science program)	2	4
M.S. ( <i>accredited</i> medical physics program)	1	3
Ph.D. or other doctoral degree (physical science or engineering)	2	4
Ph.D. or other doctoral degree ( <i>non-accredited</i> medical physics or MRI science program)	1	3
Ph.D. or other doctoral degree ( <i>accredited</i> medical physics program)	1	2
M.S. ( <i>accredited</i> medical physics program PLUS clinical residency)	0	1
Ph.D. or other doctoral degree ( <i>accredited</i> medical physics program PLUS clinical residency)	0	1

**Table 1**

## VERIFICATION OF QUALIFICATIONS

Each applicant will be required to submit proof of educational and professional experience prerequisites. Candidates applying for Part II examination will also be required to obtain two (2) letters of endorsement to verify their work experience and professional qualifications. Acceptable verification must be obtained from a board-certified Medical Physicist and a board-certified Physician who practices in a medical specialty related to the candidate's field, and who have personal knowledge of the candidate's training, experience, and ethical standing. Letters of endorsement must be forwarded directly to the Board by the professional references. It is the applicant's responsibility to ensure that these letters are received in a timely manner. The application will be considered incomplete without the two letters.

## FEES

For each part, the entire amount due in U.S. dollars must accompany the completed application. The testing fees do not include transportation, hotel, or any costs associated with traveling to take the exam.

Payment may be made by check, money order, or by PayPal. Payments made through PayPal will have an administrative fee added. Make checks or money orders payable to: American Board of Medical Physics, Inc.

Applications accompanied by incorrect fees will be returned. For applications received after the due date, a non-refundable late fee will be assessed for each part of the examination.

<b>Part of Examination (all candidates)</b>	<b>Examination Fee*</b>	<b>Add'l Late Fee if Postmarked After Deadline</b>
Part I (written) Exam	\$125	\$100
Part II (written) Exam	\$500	\$100
Part III (oral) Exam – Full Exam	\$500	\$100
Part III (oral) Exam – Conditional Retake	\$250	\$100

\*For ISMRM members, a 50% discount on exam fees will be given for Parts I and II (written exams).

**Table 2**

**\*\*The testing fee must be submitted each time a candidate requests to take an examination, including retake examinations. Once the applicant has been accepted for any part of the examination, there will be no transfer or refund of examination fees if the candidate requests a postponement or fails to appear.**



## DESCRIPTION OF EXAMINATION PARTS

The American Board of Medical Physics examination consists of three (3) parts:

- **Part I** is written and consists of matching, multiple choice, and true-false questions of the objective type. It is designed to determine the competence of the candidate in fundamental aspects of medical health physics (Medical Health Physics certification or MRI Physics certification) or magnetic resonance imaging science (MRI Physics certification).
- **Part II** is written and consists of matching, multiple choice, and true-false questions of the objective type. It is designed to determine the competence of the candidate in clinical medical health physics (Medical Health Physics certification) or MRI (MRI Physics certification).
- **Part III** is an oral examination conducted by a multi-member examination panel. It is designed to determine the candidate's knowledge and fitness to practice clinical medical health physics or MRI physics.

Parts I and II of the examination may be taken together or individually. Only one (1) Part II specialty exam may be taken on a single testing date. Candidates must pass both Part I and Part II before taking Part III.

Separate application forms must be submitted for each part of the examination accompanied by the appropriate fees, unless Part I and Part II are to be taken together.

A study guide/syllabus, found on the ABMP web page, [www.abmpexam.com](http://www.abmpexam.com), is available for each part of the examination.

## TEST CENTER INFORMATION

Eligible registered candidates will be sent an admission card prior to the test date indicating the location, date, and time of the test. Each candidate must present this admission card and picture identification in order to be admitted to the test.

The following rules will be observed at all test centers in order to ensure uniform testing conditions for Part I and Part II examinations:

1. Candidates must follow instructions on the admission card and arrive at the test center on time. Proctors will not admit candidates who arrive after the reading of the examination instructions has begun.
2. Candidates should bring several #2 pencils with them to the test center.
3. Non-programmable silent calculators (not requiring electrical outlets) may be taken into the test center.
4. No test materials, documents, or memoranda of any kind may be taken from the test center.
5. Visitors will not be permitted in the test centers.
6. Proctors will be instructed to answer questions about testing procedures only. They will not respond to inquiries regarding test content.
7. Any candidate giving or receiving assistance from another candidate will be required to turn his/her test materials in and leave the test center. The candidate will be required to reapply for the entire sequence of examinations.

## WRITTEN EXAMINATION CONTENT OUTLINES -- Part I

### Part I - General Medical Physics (may be used for Medical Health Physics and/or MRI Physics certification)\*

SUBJECT	% WEIGHT
Radiological Physics	20
Radiation Detection and Measurement	15
Biology and Radiobiology	5
Radiation Protection	15
Imaging and Other Diagnostic Studies	17
Principles of Radiation Therapy	15
Anatomy, Physiology, and Medical Science	7
Computers	6

### Part I - Magnetic Resonance Science (may be used only for MRI Physics certification)\*

SUBJECT	% WEIGHT
Atomic & Nuclear Physics	15
Chemistry & Biochemistry	15
Anatomy & Physiology	15
Medical Biophysics	15
Imaging Science and Image Processing	15
Medical & Radiological Practice	15
Clinical Statistics & Random Error Analysis	10

**\*Please Note:** Those who have previously passed the ABR (American Board of Radiology), the CCPM (Canadian College of Physicists in Medicine), or ABHP (American Board of Health Physics) Part I examination on General Medical Physics may petition to waive the requirement of taking the Part I examination for either Medical Health Physics or MRI Physics certification.

## WRITTEN EXAMINATION CONTENT OUTLINES -- Part II

### Part II - Medical Health Physics

SUBJECT	% WEIGHT
Instrumentation	10
Laboratory Design	5
Standards and Regulations	15
Radiation Oncology - including brachytherapy	15
Structural Shielding Design	15
Imaging Quality Assurance - including Nuclear Medicine	20
Radiobiology	5
Radiopharmaceutical Therapy	10
Non-ionizing Radiation	5

### Part II - Magnetic Resonance Imaging Physics

SUBJECT	% WEIGHT
The Physics of NMR	15
MR Imaging Theory & Image Reconstruction	15
Image Characteristics & Artifacts	15
Advanced Imaging Techniques & System Features	15
Contrast Enhancement, MR Angiography & Cardiac MRI	15
MR Technology & Equipment Quality Control	15
Site Planning & Safety of MR Examinations	10

# **PROTOCOL FOR CONDUCT OF ORAL EXAMINATIONS**

## **EXAMINATION COMMITTEE**

The examination committee will consist of a chairman and two to three members, all of whom vote on the candidate's performance.

## **EXAMINATION STYLE**

Candidates for oral examination will have already demonstrated an adequate fund of knowledge by successfully completing the written examinations of Parts I and II. The purpose of the oral examination is to assure that the candidate has sufficient clinical experience and can demonstrate proper responses to clinical situations. The examination will be approximately two hours in length.

## **EXAMINATION SCORE**

There are three (3) possible outcomes - pass, conditional pass or fail. Conditional pass may be obtained in up to three (3) of the seven (7) topics of the exam; "conditioned" candidates will be required to be reexamined only in the conditional topics at the next examination date. A conditional pass in four (4) or more of the seven (7) topics will result in a failed exam, and the candidate must reapply to take the entire Part III exam.

## **RE-EXAMINATIONS**

A candidate who fails to pass any part of the three-part examination may be admitted to a second examination after paying the appropriate fee. If any part of the examination has been taken unsuccessfully three (3) times, the candidate will be required to reapply for the entire sequence of examinations. There is a time limit of 10 years to complete the certification process.

## **RECERTIFICATION**

The American Board of Medical Physics recognizes the importance of continuing professional development and awards certification on a time-limited basis. The initial ABMP certification will be valid for 5 years, and must be renewed every 5 years thereafter in order to maintain certification. Effective January 1, 2014, maintenance of ABMP certification will require 125 continuing education credits every five (5) years. These 125 CE credits must consist of a minimum of 65 Category 1 credits, and no more than 60 Category 2 credits. A description of Category 1 and Category 2 credits, as well as additional information about recertification, can be found on the website, <http://www.abmpexam.com>. If your recertification application is not received in a timely manner, with appropriate continuing education credits, and supporting documents, your name will be removed from the list of duly-certified diplomates.

## EXAMINATIONS IN TRADITIONAL AREAS OF MEDICAL PHYSICS

Examinations in the specialty areas of Diagnostic Imaging Physics and Radiation Oncology Physics were offered by ABMP for the *final time* in 2005. Individuals interested in certification in these areas of medical physics are encouraged to contact the American Board of Radiology:

**American Board of Radiology**  
5441 East Williams Blvd., Suite 200  
Tucson, AZ 85711  
Phone (520) 790-2900  
Fax: (520) 790-3200  
Email: [information@theabr.org](mailto:information@theabr.org)  
Website: [www.theabr.org](http://www.theabr.org)

**Full details of the 2001 agreement between the American Board of Medical Physics and the American Board of Radiology may be accessed at the ABMP website, [www.abmpexam.com](http://www.abmpexam.com).**

## REVOCATION OF CERTIFICATION

The American Board of Medical Physics, Inc., has the right to revoke any certificate which it has awarded in the event that the recipient engages in actions which are considered to be in violation of the statement, "Guidelines For Ethical Practice For Medical Physicists", published by The American Association of Physicists in Medicine, or available at the following link: [www.aapm.org/medical\\_physicist/ethics.asp](http://www.aapm.org/medical_physicist/ethics.asp).

## CHANGES IN REQUIREMENTS

Current requirements, procedures, and fees of the American Board of Medical Physics, Inc., are subject to change without notice. No changes will be retroactive.

## CONTACT

For application forms and more information, please contact:

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