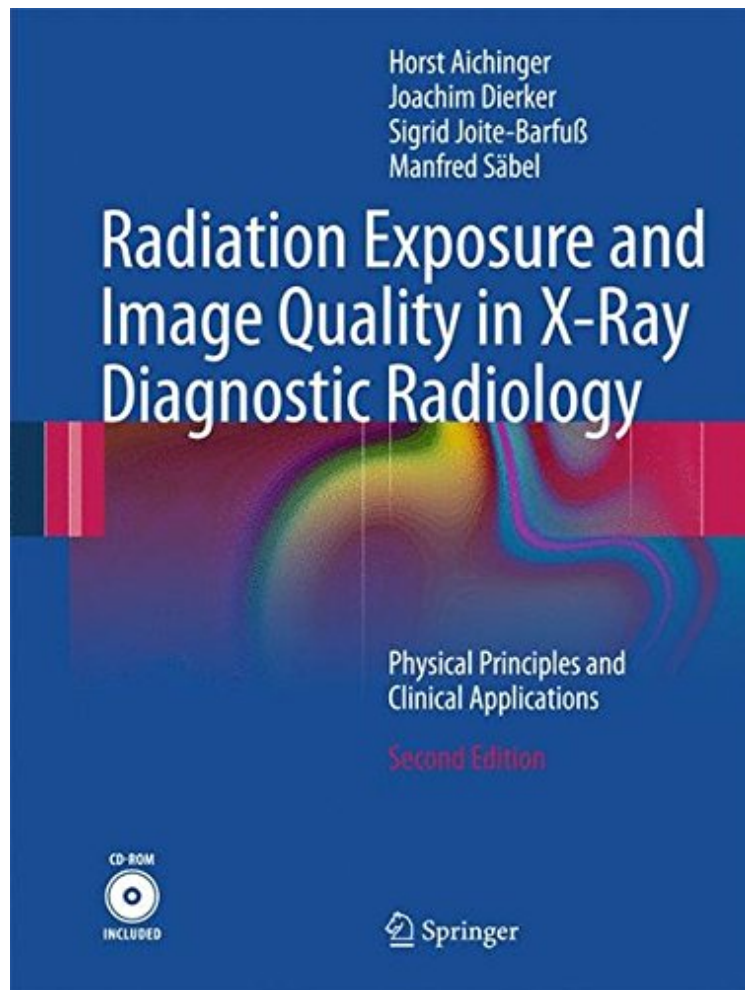


(Download ebook) Radiation Exposure and Image Quality in X-Ray Diagnostic Radiology: Physical Principles and Clinical Applications

# Radiation Exposure and Image Quality in X-Ray Diagnostic Radiology: Physical Principles and Clinical Applications

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**Horst Aichinger, Joachim Dierker, Sigrid Joite-Barfuß, Manfred Sbel : Radiation Exposure and Image Quality in X-Ray Diagnostic Radiology: Physical Principles and Clinical Applications** before purchasing it in order to gage whether or not it would be worth my time, and all praised Radiation Exposure and Image Quality in X-Ray Diagnostic Radiology: Physical Principles and Clinical Applications:

This completely updated second edition of Radiation Exposure and Image Quality in X-ray Diagnostic Radiology provides the reader with detailed guidance on the optimization of radiological imaging. The basic physical principles

of diagnostic radiology are first presented in detail, and their application to clinical problems is then carefully explored. The final section is a supplement containing tables of data and graphical depictions of X-ray spectra, interaction coefficients, characteristics of X-ray beams, and other aspects relevant to patient dose calculations. In addition, a complementary CD-ROM contains a user-friendly Excel file database covering these aspects that can be used in the readers own programs. This book will be an invaluable aid to medical physicists when performing calculations relating to patient dose and image quality, and will also prove useful for diagnostic radiologists and engineers.

From the reviews: This well-written hardback describes the physical principles involved in imaging with x-rays. an excellent addition to any medical physics department that has involvement in diagnostic radiology. It is suitable for trainee physicists in need of an up-to-date imaging reference, and will also be useful to experienced staff to refresh their knowledge on specific topics or make use of the reference data. (David Platten, *Scope*, Vol. 22 (4), December, 2013) "This textbook deals with the central concern of professionals working in diagnostic imaging. it treats the material in greater depth than is usual in standard radiological physics textbooks. The strength of the work resides in its structured treatment of topics that are pivotal in diagnostic imaging and also CT. I would recommend it as an invaluable reference work for scientists working in diagnostic imaging. It should be of particular value to those involved in the training of staff in the field." (Dr M Casey, *RAD Magazine*, May, 2004) "The book derives from a wide range of knowledge, scientific data, and extensive practical experience accumulated over the years. This book, which is a clear and comprehensive scientific overview, provides a reference for physicists, engineers, and other experts working on problems of image quality, patient dose estimation, and the establishment of diagnostic reference levels. Its launch at this time is well chosen, as European experts are much concerned with the demands of CEC 97/43 publication (MED)." (O. Glomset, *Acta Radiologica*, 2004) From the Back Cover Diagnostic X-rays are the largest contributor to radiation exposure to the general population, and protecting the patient from radiation damage is a major aim of modern health policy. Once the decision has been taken to use ionising radiation for imaging in a particular patient, it is necessary to optimize the image acquisition process taking into account the diagnostic quality of the images and the radiation dose to the patient. Both image quality and radiation dose are affected by a number of parameters, knowledge of which permits scientifically based decision making. The authors of this second edition of *Radiation Exposure and Image Quality in X-ray Diagnostic Radiology* have spent many years studying the optimization of radiological imaging. In this book they present in detail the basic physical principles of diagnostic radiology and their application to clinical problems. Particular attention is devoted to evaluation of the dose to the patient, the influence of scattered radiation on image quality, the use of antiscatter grids, and optimization of image quality and dose. The final section is a supplement containing tables of data and graphical depictions of X-ray spectra, interaction coefficients, characteristics of X-ray beams, and other aspects relevant to patient dose calculations. In addition, a complementary CD-ROM contains a user-friendly Excel file database covering these aspects that can be used in the readers own programs. Since the first edition, the text, figures, tables, and references have all been thoroughly updated, and more detailed attention is now paid to image quality and radiation exposure when using digital imaging and computed tomography. This book will be an invaluable aid to medical physicists when performing calculations relating to patient dose and image quality, and will also prove useful for diagnostic radiologists and engineers.