

Preface

This book contains the lectures given at the NATO Advanced Study Institute ASI-983455 “Radiation Protection in Medical Physics Activities”, held at the European Scientific Institute of Archamps (ESI, Archamps – France) from November 19 to November 24, 2009. The ASI course was structured in three parts: the first was dedicated to general radiation protection principles while the second shortly reviewed the radiobiology principles indispensable to operators and specialists in this field. The third part was dedicated to radioprotection implementation for medical physics activities in hospitals. The ASI took place after a 5 week period dedicated to the European School of Medical Physics (ESMP), which was devoted to medical imaging and radiotherapy. Being aware of the importance of radiation protection in hospital and medical physics activities, a number of ESMP participants chose to extend their stay and attend the ASI lectures too. The ASI courses devoted to nuclear medicine and digital imaging techniques have been collected in two volumes of the NATO Science Series entitled “Physics for Medical Imaging Applications” (ISBN 978-1-4020-5650-5) and “Molecular imaging: computer reconstruction and practice” (ISBN 978-1-4020-8751-6). The Radiotherapy and Brachytherapy ASI courses are available in a volume of the NATO Science Series entitled “Physics of Modern Radiotherapy & Brachytherapy” (ISBN 978-90-481-3096-2).

Every year in autumn ESI organises the European School of Medical Physics, which covers a large spectrum of topics ranging from Medical Imaging to Radiotherapy over a period of five weeks. Thanks to the Cooperative Science and Technology sub-programme of the NATO Science Division, a sixth week was added in 2009, structured as ASI courses dedicated to “Radiation Protection in Medical Physics Activities”. This allowed the participation of experts and students from 20 different countries, with diverse cultural background and professional experience, all of whom could fruitfully share their professional experience and discuss open problems and issues.

This opportunity is particularly enriching for our colleagues from the Southern Mediterranean Basin (Algeria, Egypt, and Morocco) who can seldom profit of similar exchanges with the European scientific community.

A very pleasant surprise was the exceptional increase in the rate of participation of North African colleagues (30% of total) , which can most likely be ascribed to the active role played by the ASI co-director, Dean Jamal DERKAoui from the Mohammed Premier University in Oujda, Morocco. A further positive outcome of NATO ASI support is the publication of this book, containing the lecture series contributed by speakers during the ASI.

We hope this book will become a reference in radioprotection, addressing an audience of young medical physicists everywhere in the world, increasingly sensitive to radioprotection in their medical physics activities at hospitals and radiotherapy facilities

We wish to thank all the participants, who allowed the ASI at Archamps to be a success within an excellent international atmosphere: lecturers, students (who participated actively) and all the ESI team (Manfred Buhler-Broglin, Alessandra Caner, Tamara Barberan, Filiz Demolis and Davide Vitè).

Many thanks to the Hôpital Cantonal de Genève and to the Radiation Control section of CERN, the European Centre for Nuclear Physics in Geneva, which allowed us to visit the radiation facilities they are in charge of and introduced us to the health safety measures implemented to protect several thousand staff members.

Finally, we wish to thank and express our gratitude to the Cooperative Science and Technology sub-programme of the NATO Science Division, lead by Professor Fausto Pedrazzini, without whom this Advance Study Institute would have not been possible.

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