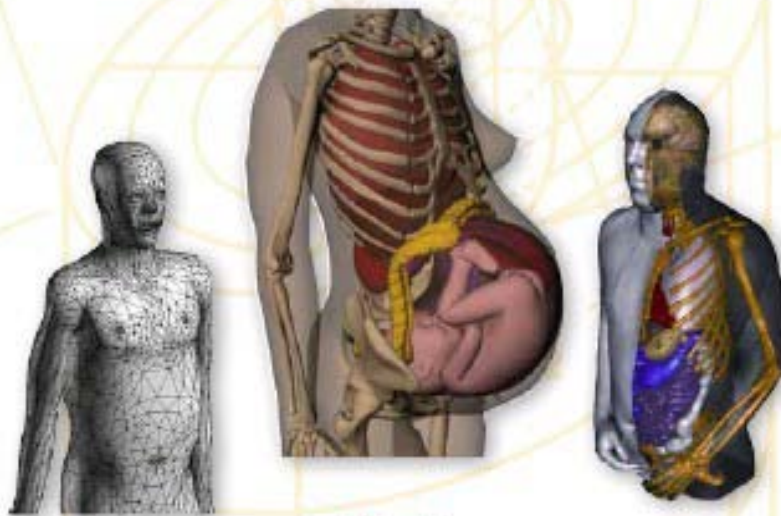


# **HANDBOOK OF ANATOMICAL MODELS FOR RADIATION DOSIMETRY**



*Edited by  
Xie George Xu and Keith F. Eckerman*

Available since 2009

- 30 chapters
- 64 authors
- 13 countries (regions)
- 100+ phantoms

# <<Handbook of Anatomical Models for Radiation Dosimetry>>

Edited by

**X. George Xu, Ph.D.**, Rensselaer Polytechnic Institute, Troy, New York, USA

**Keith F. Eckerman, Ph.D.**, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

## 1. Computational Phantoms for Radiation Dosimetry: A 40 Year History of Evolution

### **MODELS**

2. Stylized Computational Phantoms Developed at ORNL and Elsewhere
3. The GSF Voxel Computational Phantom Family
4. The ADELAIDE Teenage Female Voxel Computational Phantom
5. The MCAT, NCAT, XCAT, and MOBY Computational Human and Mouse Phantoms
6. The 3D and 4D VIP-Man Computational Phantoms
7. The FAX06 and the MAX06 Computational Voxel Phantoms
8. The University of Florida Pediatric Phantom Series
9. Japanese Computational Phantoms: Otoko, Onago, JM, JM2, JF, TARO, HANAKO, Pregnant Woman, and Deformable Child
10. Korean Computational Phantoms: KMIRD, KORMAN, KORWOMAN, KTMAN-1, KTMAN-2, and HDRK-Man
11. Chinese Voxel Computational Phantoms: CNMAN, VCH, and CVP
12. Pregnant Female/Fetus Computational Phantoms and the Latest RPI-P Series Representing 3, 6, and 9 month Gestational Periods
13. The Vanderbilt University Reference Adult and Pediatric Phantom Series
14. Mesh-Based and Anatomically Adjustable Adult Phantoms and a Case Study in Virtual Calibration of Lung Counter for Female Workers
15. The ICRP Reference Computational Phantoms
16. Physical Phantoms for Experimental Radiation Dosimetry

### **APPLICATIONS**

17. Applications to Environmental Exposures
18. Applications to External Radiation Exposures in Nuclear Power Plants
19. Applications to Bioassay for Internal Radiation Contamination
20. Applications to Nuclear Medicine
21. Applications to Computed Tomography for Pediatric Patients
22. Applications to Computed Tomography for Adult Patients
23. Applications to Optimization of X-Ray Radiographic Imaging
24. Applications to Nuclear Medicine Imaging and Dosimetry Involving MCAT, NCAT, and MOBY Phantoms
25. Applications to Secondary Radiation Dosimetry in External Beam Radiation Therapy
26. Applications to Image-Guided Radiation Treatment Planning
27. Applications to Patient-Specific Voxel Computational Phantoms in the Geant4 Monte Carlo Code for Radiation Treatment Involving Protons
28. Applications to Patient-Specific Voxel Computational Phantoms in EGS Monte Carlo Codes for Radiation Treatment Involving Photons and Electrons
29. Applications to Nonionizing Radiation Protection
30. Summary and Future Needs Related to Computational Phantoms

**Contributors Bio  
Index**

Sample voxel phantoms can be downloaded from book website link

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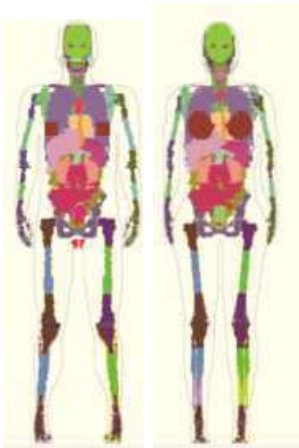
– Curtsey sample phantom images covered in the book



REX & REGINA (ICRP)



NORMAN



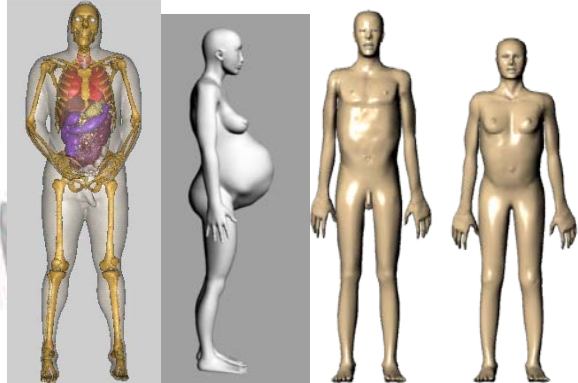
MAX06 FAX06



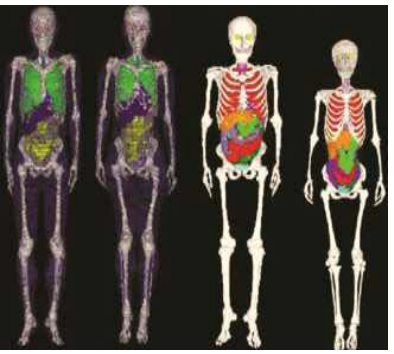
Zubal



NCAT



VIP-Man, Pregnant, Adult M/F



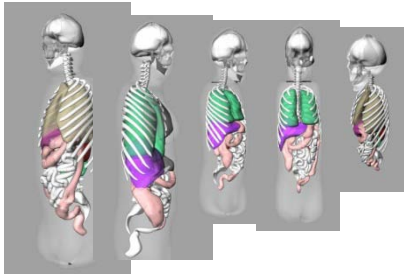
Otoko Onago JM KF



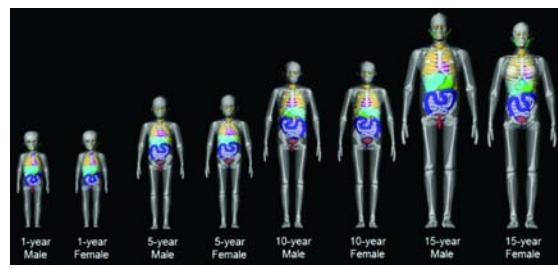
KTMAN 1, 2



CNMAN VCH



Vanderbilt Family



UF Family