EURADOS Training Course on the

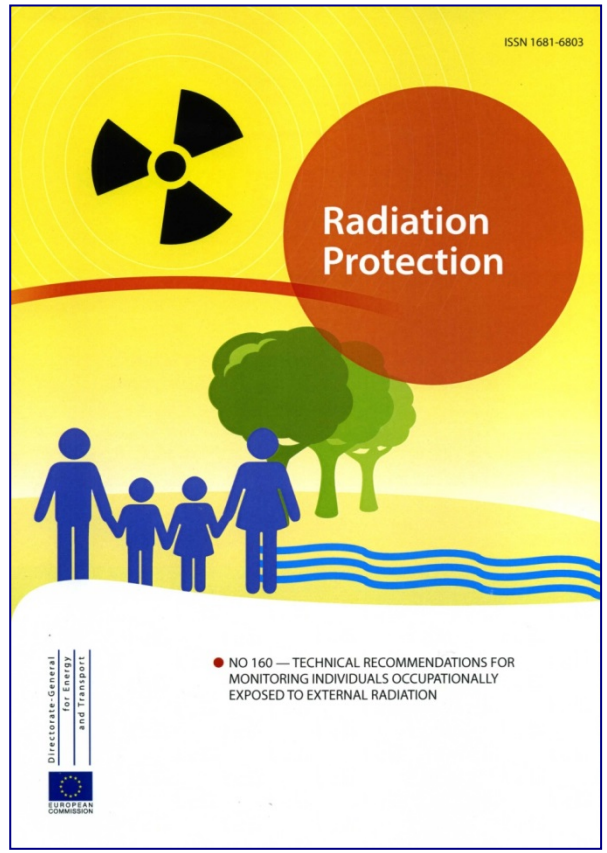
European Technical Recommendations for Monitoring Individuals Occupationally Exposed to External Radiation (Radiation Protection 160)

Instituto Superior Técnico, CTN-Bobadela (Portugal)

18th to 22nd of May of 2015

Opening Session

João Alves, Oliver Hupe



EURADOS WG02

European Radiation Dosimetry Group e.V.

EURADOS Training Course on Radiation Protection nº 160

Instituto Superior Técnico, CTN-Bobadela (Portugal)
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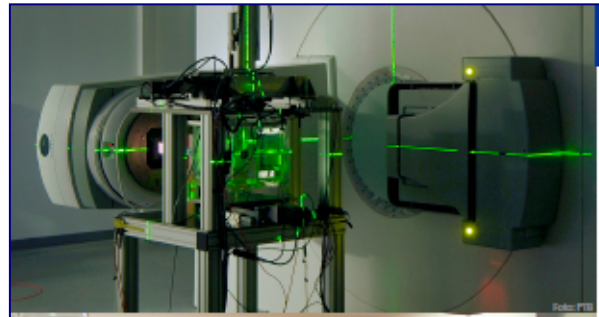
Acknowledgements

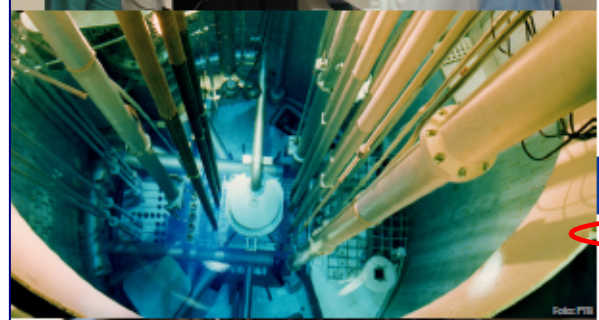
- European Radiation Dosimetry Group e.V.
  WG02 Harmonization of Individual Monitoring in EU
- Programme Committee
  Oliver Hupe, PTB, Germany
  Janwillem van Dijk, The Netherlands
  João Alves, IST, ULisboa, Portugal
  EURADOS WG02
- Lecturers
  Ana Romero, CIEMAT, Spain
  Janwillem van Dijk, The Netherlands
  João Alves, IST, ULisboa, Portugal
  Michael Hajek, IAEA, UN, Austria
  Oliver Hupe, PTB, Germany
  Peter Ambrosi, PTB, Germany
  Phil Gilvin, PHE, United Kingdom
- Local Organization
  IST staff, ULisboa

EURADOS

European Radiation Dosimetry Group e.V.

www.eurados.org



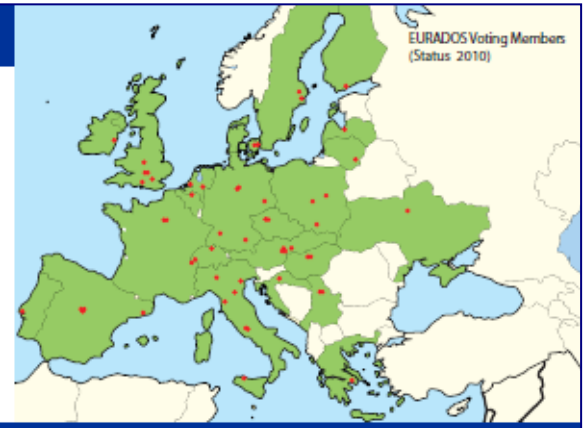


The European Radiation Dosimetry Group

We are a network of more than 50 European institutions (Voting Members) and 200 scientists (Associate Members).

Our activities encompass:

- coordination of working groups
  - which promote technical development and its implementation in routine work
  - which contribute to compatibility within Europe and conformance with international practices
- organization of scientific meetings and training activities
- organization of intercomparisons and bench mark studies



Aims

As a non-profit organization we promote research and development and European cooperation in the field of the dosimetry of ionizing radiation.

We maintain a network which includes experts, reference and research laboratories, and dosimetry services. This enables appropriate specialist groups to be formed in a timely manner to solve problems or promote research identified within EURADOS or upon request from external bodies.

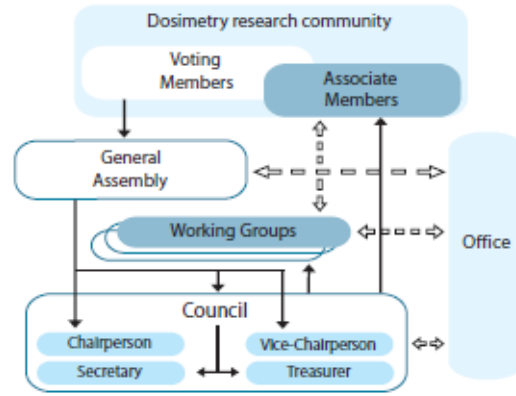
Areas of Activity

- Individual monitoring for external exposure
- Individual monitoring for internal exposure
- Retrospective dosimetry
- Environmental radiation monitoring
- Diagnostic and interventional radiology
- Nuclear medicine
- Radiation therapy
- Computational dosimetry

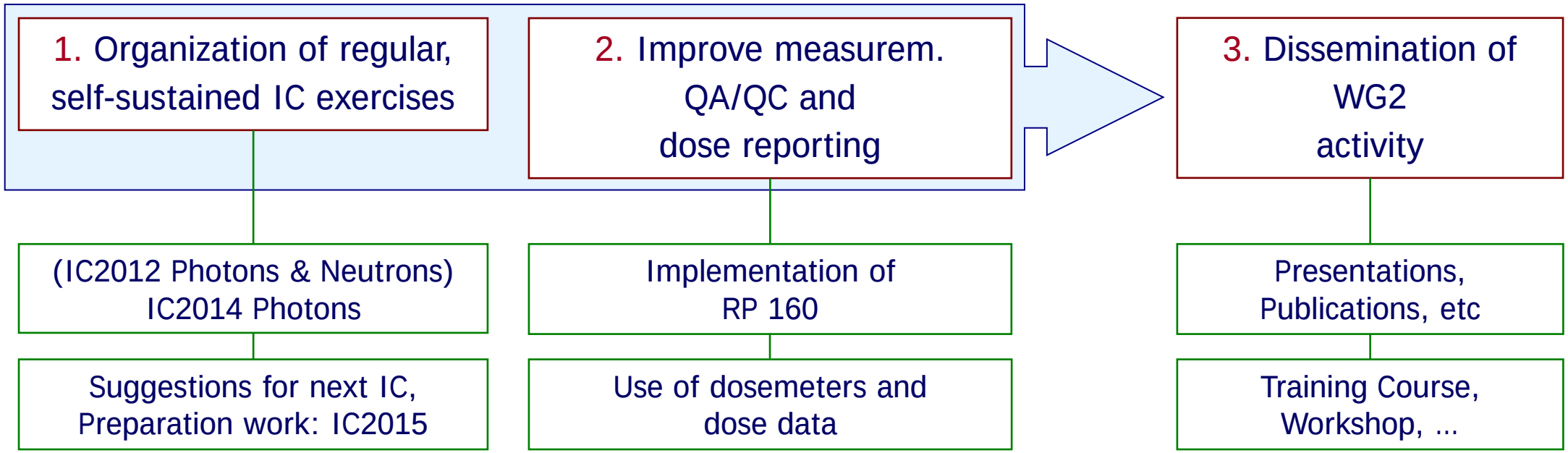
Working Groups (Status 2010)

- WG2: Harmonization of individual monitoring in Europe
- WG3: Environmental dosimetry
- WG6: Computational dosimetry
- WG7: Internal Dosimetry
- WG9: Radiation protection dosimetry in medicine
- WG10: Retrospective dosimetry
- WG11: High energy radiation fields
- WG12: European Medical ALARA Network

Structure of EURADOS



EURADOS WG02: Harmonization of IM in Europe



Task 1:
IC2015ext

(H. Stadtmann)

Task 2:
QA/QC

(P. Gilvin)

Task 3:
Training Course

(O. Hupe)

EURADOS

European Radiation Dosimetry Group
RP160 Training Course

Purpose:

The implementation of the European Commission Technical Recommendations for Monitoring Individuals Occupationally Exposed to External Radiation (Radiation Protection 160, RP160). All aspects of individual monitoring as discussed in RP160 will be addressed during the course with an emphasis on metrology and quality assurance.

Topics covered:

- General radiation protection
- Basic detection principles
- Measurement methods
- Dosimetric quantities
- Uncertainty evaluation
- Calibration and type-testing
- Inter-comparisons
- Quality assurance, quality control
- Dose registration
- Accreditation
- QA audits

Practical sessions:

The program will contain some practical work for which a laptop will come in handy (not indispensable).

Certificate:

At the end of the course a certificate of attendance will be presented on behalf of EURADOS e.V..

Organization:

João Garcia Alves, IST, Portugal
Miguel Pereira, IST, Portugal

Program committee:

João Garcia Alves, IST, Portugal
Phil Gilvin, PHE, United Kingdom
Oliver Hupe, PTB, Germany
Janwillem van Dijk, The Netherlands
Markus Figel, HMGU, Germany
Renata Kopeć, IFJ PAN, Poland

Registration:

Registration from February 1st 2015 at:
http://eurados-training.ifj.edu.pl

Co-ordination:

Dr Oliver Hupe
Physikalisch-Technische Bundesanstalt
Bundesallee 100, D-38116
Braunschweig, Germany
oliver.hupe@ptb.de

Venue:

Instituto Superior Técnico
Campus Tecnológico e Nuclear
Laboratório de Proteção e Segurança Radiológica
Estrada Nacional 10, km 139,7
2695-066 Bobadela LRS, Portugal

Registration fee:

Regular fee: 550 euro[1)]
Reduced fee: 450 euro[2,3)]

The registration fee will cover lunches, coffee breaks, a social dinner and a city tour on Wednesday afternoon.

1) The fee is exclusive VAT. 7% VAT will be added for invoices to participants from Germany and from EU member states who cannot provide us with their VAT-ID number.

2) Reduced fee for participants from the EURADOS sponsoring institutions.

3) Participants from new EURADOS sponsoring institutions not listed below are also eligible to the reduced fee.

EURADOS sponsors:

Important dates:

Registration deadline:	17 April 2015
Deadline for payment	8 May 2015
Training course	18-22 May 2015

Background:

The 3rd EURADOS Training Course on the implementation of the EC Technical Recommendations RP160 is an initiative of the EURADOS working group on Harmonization of Individual Monitoring (WG02). The revision of the Technical Recommendations RP73 was commissioned by the European Commission to a consortium of the Greek Atomic Energy Commission (GAEC) and EURADOS . The authors of RP160 were all members of the WG02 and in 2012 initiated this series of training courses.

Earlier training courses on RP160 were held in 2012 in Krakow, Poland, at the IFJ and in 2013 in Zagreb, Croatia at the RBI.

Some training material and extra documentation will be supplied on a usb memory stick.

Intended audience:

The course is intended for all stakeholders in individual monitoring for external radiation but in particular for junior or trainee managers of approved dosimetry services.

Download:

The Technical Recommendations RP160 can be downloaded from the websites of the European Commission:

http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/160.pdf

TÉCNICO LISBOA

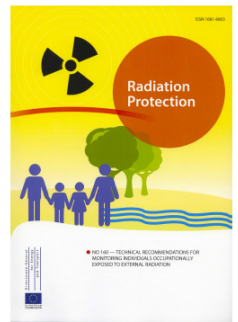
Laboratório de Proteção e Segurança Radiológica
is part of the
Instituto Superior Técnico

The European Radiation Dosimetry Group is an independent society of more than 50 scientific institutions with a focus on the dosimetry of ionizing radiation. EURADOS was founded in 1981 and is seated in Braunschweig, Germany, as an "eingetragene Verein, (e.V.)".

http://www.eurados.org

EURADOS
European Radiation Dosimetry Group
Bobadela near Lisbon
Portugal
18-22 May 2015
EURADOS Training Course

European Technical Recommendations for Monitoring Individuals Occupationally Exposed to External Radiation
(Radiation Protection 160)



First announcement

Purpose of the training course:

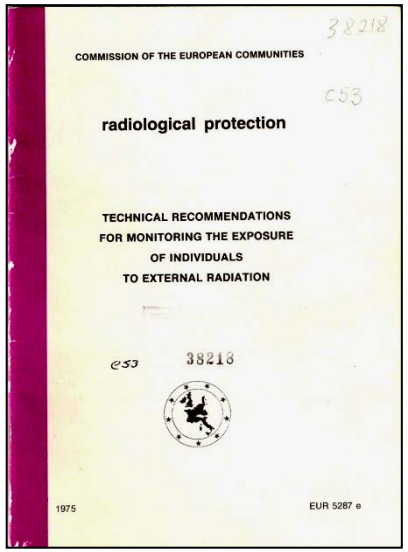
- The implementation of RP 160
- Foster Harmonization of IM in EU

Why RP 160?

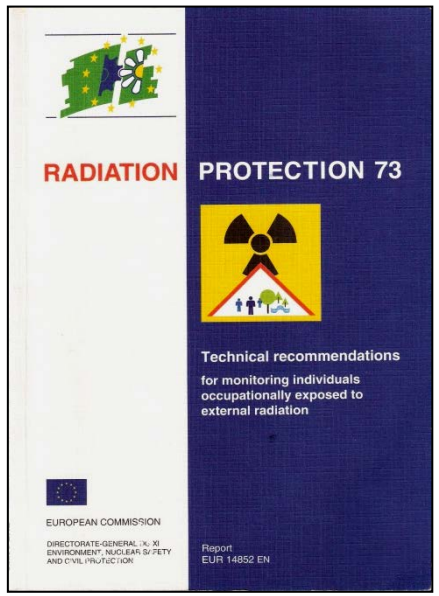
Why RP 160?

European Commission regularly publishes
its Technical Recommendations:

EUR 5287 (1975)



EUR 14852 (1994)



Are set:
in order to implement the RP principles laid down in the BSS,

Basic Safety Standards

that follow from the ICRP and ICRU recommendations

Intl Commission on Radiological Protection
Intl Commission on Radiation Units and Measurements

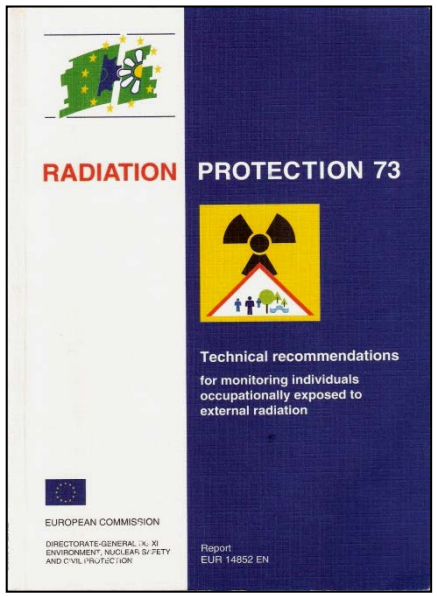
as well as the
best practices defined by the standardization bodies ISO, IEC...

International Standardization Organization
International Electrotechnical Commission

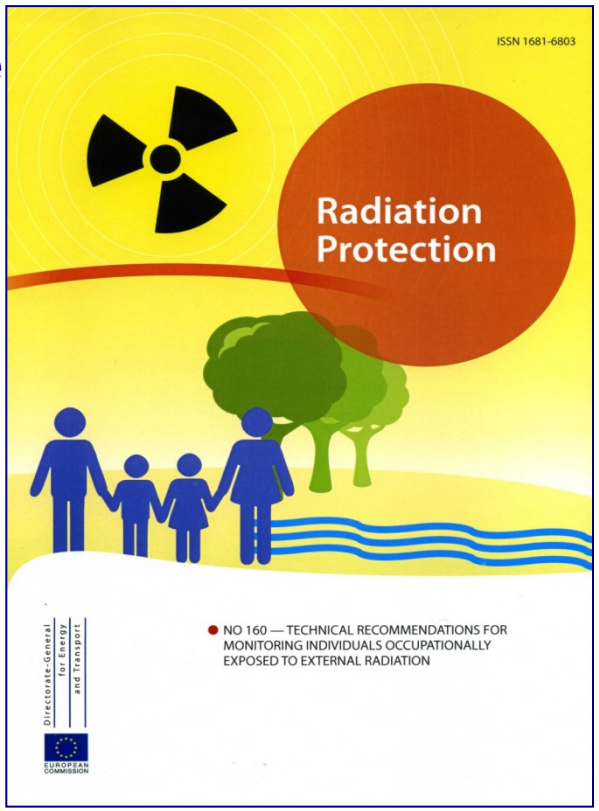
Why RP 160?

European Commission regularly publishes its Technical Recommendations:

EUR 14852 (1994)



- Generalized the use of $H_p(10)$ and $H_p(0.07)$ within Europe
- Emphasized the importance of QA and QC issues,
  - Written with passive dosemeters (TLD) taken into consideration ex. APD were not addressed,
  - Evolution of ICRP concepts, e.g. ICRP 103 (2007)
  - Development of standards and other guidance published since 1994...



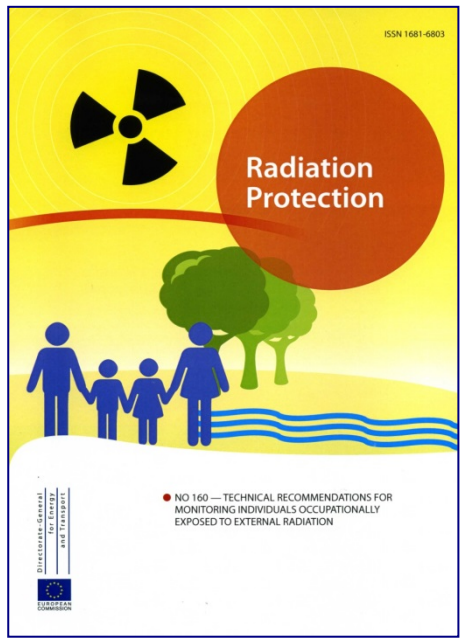
RP 160 published in end 2009
Presented at IM2010 in Athens

EURADOS Training Course

1st Institute of Nuclear Physics
Krakow (Poland) 12th-16th of November of 2012

2nd Ruđer Bošković Institute
Zagreb (Croatia), 25th to 29th of November of 2013

3rd Instituto Superior Técnico
Bobadela (Portugal), 18th to 22nd of May of 2015



Registrations: 28

Albania	1	Poland	2
Belgium	1	Portugal	5
Germany	3	Romania	2
Greece	1	Spain	6
Italy	1	Switzerland	1
Netherlands	1	United Kingdom	1

Available from: http://ec.europa.eu/energy/nuclear/radiation_protection/publications_en.htm

Made available to the TC attendants

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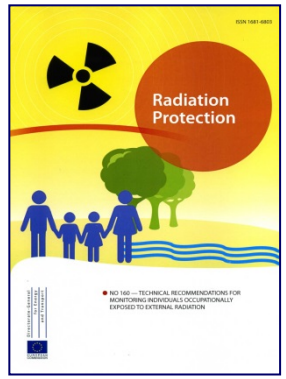

Technical recommendations for Individual Monitoring

Fundamentals	Metrology	Reporting, recording, QA accreditation, approval
Framework for IM Dosimetry concepts IM concepts	Uncertainties Accuracy requirements Type testing	General req. ADS Reporting, recording Reliability, QA, QC Approval in EU
1. Introduction 2. Recommendations 3. Terms …main text	1. Introduction 2. Recommendations 3. Terms …main text	1. Introduction 2. Recommendations 3. Terms …main text

References

Training Course RP160, May 2015, IST

	Monday, 18th May	Tuesday, 19th May	Wednesday, 20th May	Thursday, 21st May	Friday, 22nd May
9:00	Registration	Individual monitoring procedures PG	Practicum PA	Practicum ISO 17025 JA	Practicum ISO 17025 JA
9:15			The chain of type-test, calibration and	AR	Auditors point of view PG
9:30			traceable results PG		
9:45	**Welcome & Opening JA/OH**				
10:00	Scope of RP160 JD	Dosimetry concepts II OH	Praticum continued JD		Wrapping up practicum JA
10:15	Certification Accreditation Approval	Protection quantities	Evaluation of uncertainty		
10:30	Concepts and criteria of QA	Operational quantities revisited		Coffee Break	Dose record keeping, data protection
10:45	**Introduction of lecturers All**				Non dosimetric QA issues and
11:00	Coffee Break	Coffee Break	Coffee Break	Practicum ISO 17025 continued JA	Coffee Break
11:15				AR	
11:30	Framework of IM OH	Radiation detection JD/PG	**Visit to IMS and SSDL**	PG	**Questionnaire results**
11:45		Solid state, track etch, film, active			**Certificates**
12:00					
12:15					**Closure JA**
12:30	Lunch	Lunch	Lunch	Lunch	Lunch
12:45					
13:00					
13:15					
13:30	**Short presentations by participants**	Accuracy, Calibration, PA	City tour	Intercomparisons AR	
13:45	**part I**	Type Testing and Tracebility			
14:00		General			
14:15					
14:30	Dosimetry concepts I OH	Accuracy, Calibration and PA		Intercomparisons, continued AR	
14:45	Physical and operational quantities	Type Testing			
15:00		Examples			
15:15					
15:30	Tea break	Tea break		Tea break	
15:45					
16:00	Evaluation of uncertainties JD	Evaluation of uncertainties JD		Intercomparisons, special cases AR	
16:15	Concepts of the GUM	Calculation stage			
16:30	Formulation stage				
16:45					
17:00	**Short presentations by participants**			**Questionnaire and evaluation form**	
17:15	**part II**				
17:30					
17:45					
18:00					
20:00			Dinner (20:00)		

Version 0.7

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Instituto Superior Técnico, CTN-Bobadela, Portugal

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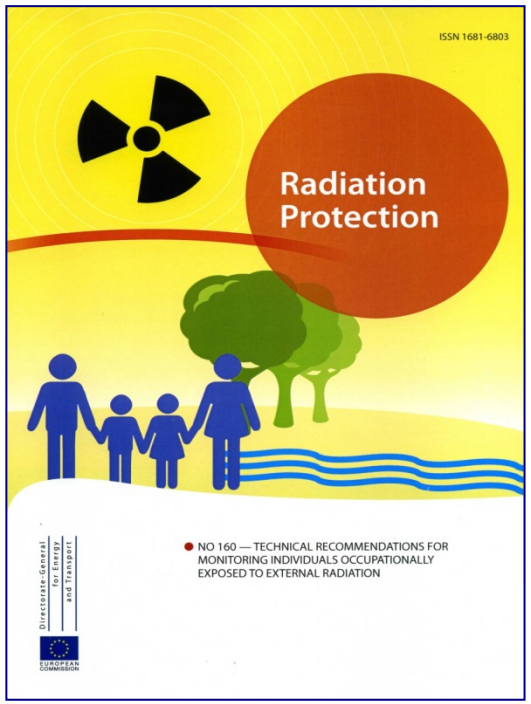
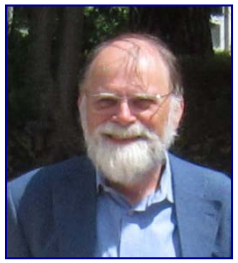


Wish the Training Course will meet your expectations!

Lecturers

Ana Romero



Janwillem van Dijk

João Alves

Michael Hajek

Oliver Hupe

Peter Ambrosi

Phil Gilvin

Local Organizing Committee

Joana Pereira

Manuela Saraiva

Sandra Rangel

Miguel Pereira