



ASTM Subcommittee E10.01
is proud to present the

**SIXTH INTERNATIONAL WORKSHOP
ON DOSIMETRY
FOR RADIATION PROCESSING**

*A unique opportunity for improving dosimetry
knowledge through in-depth plenary sessions
and comprehensive hands-on dosimetry
exercises based on industry standards.*

October 4th to 8th, 2009

**Ettlingen Castle
Ettlingen, Germany**

Sponsored by



*Atoms for Peace: The First Half Century
1957-2007*



**International
Irradiation
Association**



INTRODUCTION

ASTM Subcommittee E10.01, Radiation Processing: Dosimetry and Applications, is proud to present the sixth edition of our International Workshop on Dosimetry for Radiation Processing. This event will be held October 4th to 8th, 2009, at the Ettlingen Castle (Schloss Ettlingen) in Ettlingen, Germany, a district of Karlsruhe.

This workshop is patterned after our previous five successful workshops. It includes lectures, practical hands-on exercises and follow-up roundtable discussions, with emphasis on the application of ASTM and joint ISO/ASTM standards. Attendance will be limited to the first 100 technical participants who register.

OBJECTIVE

The objective of this workshop is to enhance the knowledge and use of dosimetry through improved understanding of dosimetry principles, factors that influence dosimeter performance, limiting factors on dosimeter usage, dosimetry system calibration requirements, uncertainty in absorbed dose measurements, and application of dosimetry in process validation and process control. Active participation will better equip participants regarding the requirements and application of ASTM and ISO/ASTM standards. This course provides essential information for all radiation processing applications, including the processing of medical products, foods, inks, packaging, polymers, and pharmaceuticals.

WHO SHOULD ATTEND?

This event will be valuable for anyone involved in radiation processing dosimetry. This includes:

- Researchers
- Irradiator operators
- Medical products manufacturers
- Dosimeter suppliers
- Regulatory personnel
- Food processors
- Quality assurance personnel
- Auditors

KEY WORKSHOP BENEFITS

- Gain a solid understanding of dosimetry principles, applications, and standards.
- Increase participants' knowledge and understanding of ASTM and ISO/ASTM standards and their application to radiation processes.
- Benefit from the insights and experience of internationally recognized dosimetry experts.
- Hear regulatory agencies' perspectives on standards and the radiation sterilization process.
- Build and strengthen contacts with developers, manufacturers, and users of current and new dosimetry systems.

WORKSHOP FORMAT

This comprehensive standards-based program incorporates overview plenary sessions, small roundtable workshop sessions, and practical hands-on exercises. Attendees will choose a specialized hands-on program developed for either a photon-based (gamma or x-ray) or electron beam processing application.

In plenary sessions speakers address all participants and will outline the applicable standards that establish the foundation for the hands-on exercises that follow. For the hands-on exercises, attendees will be divided into smaller groups focusing on either a photon-based or electron beam process. Each hands-on group will be chaired by an experienced leader who will facilitate the group exercises. Following each hands-on exercise, a roundtable session will provide a small group forum that discusses the group exercises, encourages a free exchange of ideas, allows the opportunity for further clarification and maximizes participation from each attendee.

Everyone is encouraged to bring specific problems or questions to the sessions with the expectation that they will be discussed and resolved by the end of the workshop.

HANDS-ON DOSIMETRY

Important aspects of dosimetry for gamma radiation, electron beam and X-ray processing will be covered through hands-on activities. This will include comprehensive data treatment and calibration exercises.

POSTER & DEMONSTRATION SESSION

An informal poster session is also planned, with posters displayed for the duration of the workshop. Attendees interested in presenting their work should contact Mark Bailey, mark.bailey@npl.co.uk, for details. Titles and abstracts are due by July 31, 2009. There also will be an equipment and technology demonstration session allowing attendees to meet "one-on-one" with developers, manufacturers, and users of current and new dosimetry systems. This session will focus on research activities and user/manufacture interactions.

SITE VISITS

Several companies have offered to host participants during the Tuesday site visits. Participants will have the opportunity to travel to one of the following facilities:

- Aerial, a manufacturer of dosimetry systems and services
- Beta Gamma Service, an irradiation service facility
- Max Rubner-Institut Federal Research Institute of Nutrition and Food, a research facility specializing in food and nutrition
- Bruker Biospin, a manufacturer of EPR systems for alanine dosimeters

A minimum number of registrants will be required to permit all choices. Passports may be required for some of the sites.

THE HOTELS

ASTM has arranged special rates of 84 € per night single occupancy and 94 € per night double occupancy at two hotels: the Stadthotel Engel Ettlingen (www.stadthotel-engel.de) and the Hotel Wathalden (www.hotel-wathalden.de). This rate includes breakfast each morning at the hotel and is valid for three days before and three days after the workshop. Both hotels are a short walk from the meeting rooms at the Castle.

Participants are responsible for reserving and paying for their own hotel rooms. When making reservations please mention ASTM Workshop.

COMPANIONS' ACTIVITIES

For workshop attendees who are traveling with a companion we are happy to announce a dedicated Companion's Program. Companions are welcome to attend the Sunday evening social (no cost) and Wednesday evening banquet (nominal fee). For each day of the workshop an event will be planned that showcases the history and intrigue of the Karlsruhe area. All events will cost a nominal fee; however, individuals will be able to choose the events they wish to attend. Details of the program and costs will be available soon on the workshop website.

SPONSORS

In addition to the time and effort provided by the members of the organizing committee and other ASTM members, a number of corporations have agreed to provide funding for specific events or services. This support is greatly appreciated, since it assists in keeping the registration fees low. We will acknowledge these companies at the Workshop and in future correspondence. Contact Joe Koury if your company is interested in becoming a sponsor.

TRANSPORTATION

Ettlingen is accessible by train via Karlsruhe main station and transferring to the local train (S Bahn) or taxi. Nearby airports in Frankfurt, Stuttgart and Strasbourg have train connections to Karlsruhe. Rail planning and ticketing is available at:

<http://reiseauskunft.bahn.de/bin/query.exe/e>
and
<http://www.raileurope.com>

Information on bus transfer from Baden-Airpark to Karlsruhe main station is available at:
<http://www.baden-airpark-express.de>

REGISTRATION

Online registration opens approximately April 1 and closes September 18, 2009. The fees to attend the workshop are listed below. Registration fees are in US dollars and include Germany's 19% VAT. These fees include: registration, Sunday evening reception, four lunches, Wednesday Banquet dinner, coffee breaks, and site visits. All participants are expected to stay for the full workshop.

FEES (USD)

	Before Aug. 1	Aug. 1 to Sep. 18
ASTM Member	\$1425	\$1725
Non-Member	\$1500	\$1800

Space in the workshop is limited to 100 registrants. Register online before August 1, 2009 to be eligible for the early registration rates listed above and to ensure space.

To register, click the "Register Now" link at www.astm.org/MEETINGS/COMMIT/e10wkshp0909.htm

Cancellations

If you must withdraw your registration, please contact Hannah Sparks at ASTM Symposia Operations at hsparks@astm.org or tel: +1 610-832-9678 as soon as possible. Cancellation requests received by ASTM by September 4, 2009 will result in a full refund less a \$50.00 USD processing fee. For cancellations between September 4 and 18, a reduced refund will be provided. No refunds will be granted for cancellations after September 18, 2009. Refunds will be issued by ASTM approximately 10 business days following the conclusion of the workshop

Reception

A reception will be held Sunday evening, October 4. For workshop registrants, the cost of the reception is included in the workshop fee.

Banquet Dinner

A Banquet Dinner will be held Wednesday, October 7. For workshop registrants, the cost of the banquet dinner is included in the workshop fee.

Questions about Registration

If you have questions concerning online registration, please contact Hannah Sparks at ASTM Symposia Operations at:
E-mail hsparks@astm.org
Telephone: +1 610 832-9677.

VAT

The conference fee includes Germany's VAT of 19%. Companies in EU member states and in countries that have a reciprocity agreement with Germany may be able to

recover VAT for the conference fee, hotel charges and other costs.

CONTACTS

Contact:

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Technical Contacts:

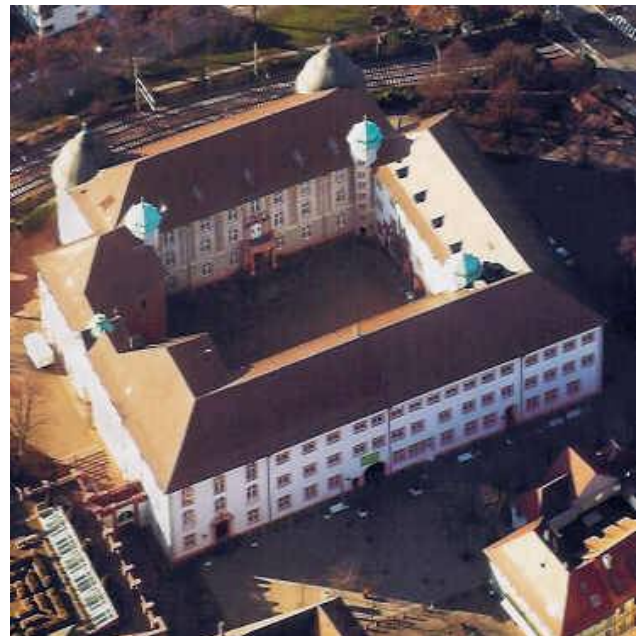
Glenn Calvert
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Kevin O'Hara
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Workshop Website and Online Registration Link:

www.astm.org/MEETINGS/COMMIT/e10wkshp0909.htm

Remember to make your hotel reservations at
Stadthotel Engel Ettlingen
www.stadthotel-engel.de
or
Hotel Watthalden
www.hotel-watthalden.de



Conference sessions will be held at the Schloss Ettlingen (the Ettlingen Castle)

TECHNICAL SESSIONS

The plenary sessions and the workshop group discussions will cover the following topics:

I. Dosimetry Overview and Selection:

This session will serve as an introduction to many of the topics covered in more detail in later sessions. Topics include definitions and concepts, dosimetry requirements, relationship of ASTM standards to other recognized standards, dosimetry system selection, introduction to calibration and measurement uncertainty.

II. Uncertainties in Absorbed Dose Measurements:

Accurate dosimetry is essential in process control. For absorbed dose measurements to be meaningful the combined uncertainty associated with these measurements must be estimated and its magnitude quantified. Topics to be covered include:

- Basic concept of uncertainty in the measured value of a quantity and its significance
- Methodology for classification of uncertainty components
- Identification of sources of uncertainty
- Uncertainty evaluation for a measured dose value
- Standard uncertainty, combined uncertainty and expanded uncertainty
- Impact of uncertainty on routine processing and use in setting process parameters

III. Influence Quantities:

Many influence quantities can affect the performance of dosimeters and dosimetry systems used in radiation processing and must be considered during the performance characterization of the dosimeter and dosimetry system. Subcommittee E10.01 has produced a new standard to provide guidance to those performing studies to determine the effects of influence quantities. The topics include:

- Influence quantities to be considered
- Impact of influence quantities on routine processing dosimetry
- Design of experiments and its application in performance characterization
- Improvement of dosimetry results using acquired knowledge regarding the performance characteristics of the dosimetry system.

IV. Dosimetry System Calibration:

This session will provide an introductory overview of the objective and requirements of calibrating a routine dosimetry system. Details will be given for laboratory calibrations and in-plant calibrations.

V. Dose Mapping Gamma, X-Ray (Bremsstrahlung) and Electron:

Radiation processing is usually associated with absorbed dose

limits: a minimum to assure the desired effect (e.g., curing, and sterilization) and a maximum to avoid adverse effects (e.g., product degradation).

Dose mapping is performed to determine the capability of the facility to process products within defined limits and to qualify individual products. Operational Qualification (OQ) and Performance Qualification (PQ) will be covered.

VI. Hands-On Sessions:

The important aspects of dosimetry for gamma, electron beam, and x-ray processing discussed during the plenary sessions will be reinforced through a series of hands-on sessions. Attendees will choose from hands-on sessions that focus on either a photon source or electron source of radiation and will work in small groups to analyze data, make decisions about how to treat the data and prepare a rationalization documenting their decisions and treatment of the data. These hands-on sessions will allow participants to work through a series of specific examples related to:

- Calibration of dosimetry systems
- Dose mapping during Operational Qualification (OQ)
- Dose mapping during Performance Qualification (PQ)
- Process establishment and control

VII.A. Special Topic Session: The Application of Mathematical Modeling in Radiation Processing:

This session will present a short history of mathematical modeling with a description of most models in use today. Examples will present the problem, the data sets and the data analysis, including a look at the uncertainties associated with dose calculation. Examples will include dose uniformity in product, source rack transit and heterogeneous product.

VII.B. Special Topic Session: Low Energy E-Beam

The use of low energy electron beams for surface sterilization and material modification has specific dosimetric challenges. This session will discuss dosimetry system calibrations, electron beam system validations, product validations, and routine process monitoring for low energy electron beam systems.

VII.C. Special Topic Session: Worldwide Regulatory Perspective

Speakers from regulatory agencies will present their agency's perspective on standards and the radiation sterilization process.

WORKSHOP SCHEDULE

Ettlingen Castle, Ettlingen, Germany

October 4 to 8, 2009

	Sunday	Monday	Tuesday	Wednesday	Thursday	
7:30						
8:00		BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	
8:30		WELCOME AND INTRODUCTION				
9:00		PLENARY I DOSIMETRY OVERVIEW AND SELECTION	HANDS-ON SESSION VI-A Calibration	HANDS-ON SESSION VI-B Dose Mapping (OQ)	HANDS-ON SESSION VI-D Process Establishment and Control	
9:30						
10:00		PLENARY IIA UNCERTAINTIES				
10:30		BREAK				
11:00		PLENARY III INFLUENCE QUANTITIES				
11:30			BREAK	BREAK	BREAK	
12:00			HANDS-ON SESSION VI-A ROUNDTABLE	HANDS-ON SESSION VI-B ROUNDTABLE	HANDS-ON SESSION VI-D ROUNDTABLE	
12:30						
13:00		LUNCH		LUNCH	LUNCH	
13:30		PLENARY IV DOSIMETRY SYSTEM CALIBRATION				
14:00		PLENARY V DOSE MAPPING			SPECIAL TOPICS SESSION Modelling (VII-A)	
14:30				HANDS-ON SESSION VI-C Dose Mapping (PQ)	SPECIAL TOPICS SESSION Low Energy E-Beam (VII-B)	
15:00		PLENARY IIB UNCERTAINTIES	SOCIAL ACTIVITIES/ SITE TOURS BOX LUNCH and ON OWN FOR DINNER			SPECIAL TOPICS SESSION Regulatory Perspective (VII-C)
15:30		BREAK			BREAK	
16:00	CONFERENCE REGISTRATION and WELCOME RECEPTION 1500 - 1900	Oral Summary of Poster Paper Sessions and Dosimetry Systems Demos			HANDS-ON SESSION VI-C ROUNDTABLE	RECAP and CLOSING REMARKS
16:30					BREAK	
17:00					Free Time	
17:30					BANQUET	
18:00						
18:30						
19:00						
19:30		DINNER (on own)				
20:00						
20:30						
21:00						
21:30						
22:00						

NOTE 1: Poster Session Room open all week for posters only (Poster/Demo room to be open Sunday from 1300 to 1700 for poster and equipment setup).

NOTE 2: Hands-on participants will be divided into groups according to their interest on the primary radiation source (photon versus electron beam).