



Radiotherapy Coupled  
with Hyperthermia

**EURAMET EMPIR 18HLT06 RACHY PROJECT:**  
HOW THE METROLOGY CAN SUPPORT RADIOTHERAPY COUPLED  
WITH HYPERTHERMIA

# STAKEHOLDER WORKSHOP

Monday, 10th February 2020 from 12:45 to 18:00

VSL - DUTCH METROLOGY INSTITUTE

Thijssseweg 11, 2629 JA Delft - The Netherlands

Auditorium

For local info, please contact Jacco de Pooter:  
JdPooter@vsl.nl

For registration to the workshop:  
<https://rachy-project.eu/2019/stakeholder-workshop/>

## Abstract:

**EURAMET EMPIR 18HLT06 RaChy** - Radiotherapy Coupled with Hyperthermia - **project** is aimed at providing metrological support to achieve the maximum synergistic advantages in the **integration of Radiotherapy Oncology with different hyperthermia** techniques, based on

- **High intensity Therapeutic Ultrasound (TUS),**
- **Electromagnetic Radiation (EMR),**
- **Magnetic Nanoparticles (MNPs)** excited by AC magnetic fields.

One of the main aims of this project is to experimentally demonstrate how the use of different sources to generate hyperthermia, combined with radiotherapy, could result in a successful treatment of the whole tumour. This approach requires **excellent knowledge and control** of the **temporal** and **spatial distributions** of **temperature increases**, and of the **radiation dose during and after the treatments**.

Project Consortium

# VSL - DUTCH METROLOGY INSTITUTE - Auditorium

## Monday, 10th February 2020

12:45

**COFFEE AND REGISTRATION**

13:30

**WELCOME AND OPENING OF THE WORKSHOP**

**Marc Pieksma** (Scientific Program Manager) • VSL Dutch Metrology Institute - Netherlands

## PRESENTATION FROM THE RACHY CONSORTIUM

13:40

**EURAMET EMPIR 18HLT06 RACHY PROJECT OVERVIEW**

**Giovanni Durando** • INRIM Istituto di Ricerca Metrologica - Italy

13:50

**DESIGN OF MAGNETIC NANOMATERIALS FOR TARGETED HYPERTHERMIA**

**Alessandra Manzin** • INRIM Istituto di Ricerca Metrologica - Italy

14:10

**MEASURING TEMPERATURE, IS THIS THE METROLOGICAL CHALLENGE FOR MEDICAL ULTRASOUND?**

**Piero Miloro** • NPL National Physical Laboratory - UK

14:30

**IN VITRO AND IN VIVO HYPERTHERMIA: OVERVIEW AND EXPERIMENTAL PLANNING.**

**Antonello Spinelli** • OSR Ospedale San Raffaele - Italy

14:50

**INNOVATIVE ANALYTICAL TOOLS FOR BIOLOGICAL ASSESSMENT**

**Andrea Hornemann** • PTB Physikalisch-Technische Bundesanstalt - Germany

15:10

**REVIEW OF THE BIOLOGICAL EQUIVALENT DOSE (BED) CONCEPT**

**Jacco de Pooter** • VSL Dutch Metrology Institute - Netherlands

15:30

**COFFEE BREAK**

## PRESENTATION FROM STAKEHOLDERS

16:00

**HIFU FIELD CHARACTERIZATION USING TISSUE-MIMICKING MATERIAL**

**Subha Maruvada** • FDA U.S. Food & Drug Administration - USA

16:25

**NEW DESIGNATION FOR OLD MATERIALS: IRON OXIDE NANOPARTICLES FOR IMAGE-GUIDED THERMO-RADIOTHERAPY**

**Kristina Djanashvili** • Delft University of Technology - Netherlands

16:50

**CURRENT STATUS OF HYPERTHERMIA BY RADIATIVE ELECTROMAGNETIC FIELDS AND MAGNETIC NANOPARTICLES**

**Gerard van Rhoo**n • ERASMUS M.C. Erasmus University Medical Center - Netherlands

17:15

**ULTRASOUND - PRECLINICAL APPROACHES**

**Gail ter Haar** • ICR The Institute fo Cancer Research - UK

17:40

**FINAL REMARKS AND CLOSING OF THE WORKSHOP**

**Giovanni Durando** • INRIM Istituto di Ricerca Metrologica - Italy