

# “TEFOS 2022”

IAEA-CEDAD TRAINING WORKSHOP ON THE

"APPLICATIONS OF ACCELERATOR - BASED AND  
COMPLEMENTARY **TECHNIQUES** FOR **FORENSIC SCIENCE**"

20-24 June 2022, Lecce - Italy



**IAEA**

International Atomic Energy Agency  
*Atoms for Peace and Development*



CEntro di Fisica applicata, **DA**tazione e **DI**agnostica



**UNIVERSITÀ  
DEL SALENTO**  
*The University of the two seas*



Scuola  
Superiore  
**ISUFI**



**Regione Puglia**



**Provincia di Lecce**



**Provincia di Brindisi**



**CITTÀ  
DI LECCE**



*Città di Otranto*

# SCIENTIFIC PROGRAMME

**SUNDAY, June 19, 2022**

Arrival of the participants

**MONDAY, June 20**

*University Rectorate, Piazza Tancredi, Lecce*

- 8.30 **Reception and Registration**

- 10.00 **Opening and Welcome**

Prof. Lucio Calcagnile Chair and Director of CEDAD-University of Salento

Dr. Aliz Simon Chair - Physics Division, International Atomic Energy Agency

**Institutional greetings**

Prof. Fabio Pollice - Rector of the University of Salento

Prof. Domenico Fazio - Director of the ISUFI

Prof. Michele Campiti, Director of the Department of Mathematics and Physics

Dr. Sebastiano Leo - Assessor of University and training, Apulia Region

Dr. Stefano Minerva – President of the Province of Lecce

Dr. Carlo Salvemini – Mayor of Lecce

Dr. Luigi De Luca – Director Poli Biblio-Museali – Apulia Region

**The Coordinated Research Project of the International Atomic Energy Agency**

- 11.00 Simon Aliz: **CRP: Enhancing Nuclear Analytical Techniques to Meet the Needs of Forensic Science**
- 11.30 **Introduction of participants**

- 12.15 **Concert of the Unisalento Polyphonic Choir – Chiesa del Carmine**
- 13.30 **Lunch break**

### **SESSION 1 – ACCELERATOR-BASED TECHNIQUES**

*Conference Room, Convitto Palmieri - Piazzetta Giosuè Carducci, Lecce*

- 15.00 A. Simon – G. Quarta “Overview and Organization of the workshop”
- 15.30 “Fundamentals and applications of Accelerator Mass Spectrometry”, T. Jull
- 16.30 “Sample preparation for accurate radiocarbon ages of cultural heritage objects”, I. Hajdas

### **SESSION 2 – FORENSIC TECHNIQUES**

- 17.15 “Identification of bodies without name: Anthropology and forensic odontology”, C. Milani
- 18.00 “Physics in ballistic investigations and in the reconstruction of the criminal dynamics”, P. Fratini

**TUESDAY, June 21**

### **SESSION 3 - ION BEAM ANALYSIS TECHNIQUES**

- 9.00 “Use of the MeV SIMS and PIXE for forensic applications” I. Bogdanovic
- 10.00 “Important Aspects of Accelerator-Based Techniques for Forensic Scientists”, J. Dias

## SESSION 4 - ISOTOPE TECHNIQUES

- 11.00 “IRMS technique and application to forensic science”, L. Mounier
- 12.00 “AMS/IRMS applications in food studies at Debrecen AMS Laboratory”, M. Molnar
- 13.00 **Lunch break**

## SESSION 5 - RAMAN AND X-RAY SPECTROSCOPIES

- 15.00 “Raman Spectroscopy: Applications in Art Analysis and Forensics”, P. Vandenamelee - EXPERIMENTS
- 17.00 “The use of portable ED-XRF technique as a tool for forensic applications in Cultural Heritage”, S. Ridolfi - EXPERIMENTS

## WEDNESDAY, 22 June

9.00 *Departure to Brindisi – Meeting point: Carlo V Castle, Lecce*

## SESSION 6 – AMS-IBA-IRMS PRACTICAL TRAINING

*CEDAD Laboratories - Cittadella della Ricerca – Brindisi*

- 10.00 L. Calcagnile – G. Quarta “CEDAD: History, new developments and research in Forensic Science”
- Experiments on the applications of IBA, IRMS and AMS techniques to Forensic Science
- 13.30 **Lunch break**

- 16.00 Contributions of participants and discussion
- 17.00 Return to Lecce

## **THURSDAY, 23 June**

9.00 *Departure to Otranto – Meeting point : Carlo V Castle, Lecce*

### **SESSION 7 – FORENSIC DNA and THREAT ANALYSIS**

*Conference room – Aragonese Castle , Otranto*

- 10.30 “Forensic DNA analysis: technological development and innovative applications”, D. Luiselli
- 11.30 “Threat analysis”, M. Musumeci
- 12.30 Contributions of participants and discussion

## **FRIDAY, 24 June**

### **SESSION 8 – ELECTRON MICROSCOPY AND TL FOR FORENSICS**

*Conference Room, Convitto Palmieri, Piazzetta Giosuè Carducci, Lecce*

- 9.00 “Compositional and morpho-structural characterization by electron microscopy techniques in forensic sciences”, M. Catalano
- 10.00 “Authentic or fake? Limits and strengths of authenticity tests”, A. Gueli, G. Stella
- 11.00 Discussion on challenges and best practice for analysis of forensic samples
- 12.00 Conclusion and closing remarks