Background

Plastic Scintillators (PS) are known since the origin of the development of the scintillation techniques in the 60' but their use has been especially focused to dosimetry and large area detectors for gamma radiation. In the last decade, the interest for the application of Plastic Scintillators in form of microspheres (PSm) to radionuclide determinations has significantly increased mainly because: their detection capability of alpha and beta emitters is similar to liquid scintillation cocktails (except for low beta emitters), their use do not produce mixed waste (sample and PSm can be segregated after measurement), PSm can be used in continuous determinations and because PSm are an excellent solid platform to introduce selectivity strategies by unifying radionuclide separation and detection in a single element, the Plastic Scintillating resins (PSresin). The introduction of PSresin in the routine separation procedures allows saving time and reagents.

http://www.ub.edu/questram_r/research/PSm.html
Key Concepts

The objective of this workshop is to introduce the participants to the fundamentals of both PSm and PSresins and, especially, to the practical aspects of their use on routine analysis.

This workshop includes an overview of the fundamental of PSm and PSresin, their potential application to radionuclide determination and practical aspects related to chemical separation, sample preparation and measurement.

The workshop duration is 2.5 days distributed half to presentation of the theoretical aspects and half to the practical work in the laboratory.

The organizers Dr. Luz Santiago, Dr. Héctor Bagán, Dr. Alex Tarancón and Dr. Jose F. García (the last three, members of the University of Barcelona) are involved in the research on Plastic Scintillators for analytical purposes since 1995.

How You will Benefit from This Course

In this course you will:

- Acquire deep fundamentals knowledge of plastic scintillation techniques
- Discuss about its possibilities and applications
- Understand the details related to the use of PSm and PSresins
- Prepare and measure samples with including alpha and beta radionuclides by using PSm and PSresins

Preliminary program topics

Day 1- Plastic Scintillating microspheres (PSm)

Morning

- PSm: general overview. Advantages/disadvantages of PSm
- Mechanism of scintillation: quenching and calibration
- Alpha/beta discrimination
- Applications: salty samples, alpha/beta indices, radon determination, continuous monitoring
- Ongoing developments

Afternoon

- Sample preparation: practical aspects PSm
- Preparation of vials
- Measurement of samples prepared
Day 2- Plastic Scintillating resins (PSresins).

Morning

- Discussion of results: spectra distribution, detection efficiency, background and α/β discrimination of samples measured by using PSm

- PSresins: general overview. Advantages/disadvantages of PSresins
- Applications: $^{14}$C salty samples, $^{90}$Sr in milk in emergency situations, $^{99}$Tc in urine, $^{210}$Pb in sculptures
- Ongoing developments

Afternoon

- Reuse of PSm
- Sample preparation: practical aspects PSresins
- $^{99}$Tc and $^{90}$Sr determination in water samples
- PSresin cartridges measurement

Day 3- Plastic Scintillating resins (PSresins)

Morning

- Data treatment: chemical yield, detection efficiencies and spectra distribution and activity determination
- General discussion and closing remarks

Lecturers: Luz Santiago, Marina Sáez, Héctor Bagán, Alex Tarancón and José F. García.

Number of places will be limited to 10.

Workshop language will be English
Registration

Registration will be performed in two steps:

PRE-REGISTRATION
Please fill the Pre-registration form and return it by e-mail to jfgarcia@ub.edu. Deadline February 9th, 2018.

Acceptance list will be submitted to pre-registered participants by e-mail before February 16th, 2018.

REGISTRATION OF FINAL ATTENDEES
Attendees will be contacted to complete the registration process.
Deadline March 15th, 2018

Final program of the workshop will be published at the same time.

Send the Pre-registration to:
e-mail: jfgarcia@ub.edu
Fax: (34)934021233

Important Dates and Deadlines!

December 5th, 2017: First announcement
February 9th, 2018: Deadline for Pre-registration
February 16th, 2018: Acceptance list
From February 16th, 2018 to March 15th, 2018: Registration
From May 23th to 25th, 2018: Workshop

Venue

The workshop will take place at the:
University of Barcelona
Department of Chemical Engineering and Analytical Chemistry
645, Diagonal
08028 Barcelona, Spain

Registration fee

325 € (including material, documentation, coffee breaks and Wednesday and Thursday lunches)
Contact

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Travel and Housing

Participants are responsible for their own travel, meals (except included in the registration fee), and housing arrangements.

More information will follow on the workshop website (http://www.ub.edu/LSC2013BCN/PS2)