

The potential of flow cytometry (FC) is still largely unexpressed in areas different than the clinical and biomedical applications, for which is widely applied since the '60s of the last century. High processivity, multiparametric and analytical precision are typical features for FC, all well suited to different and unconventional (exotic) applications.

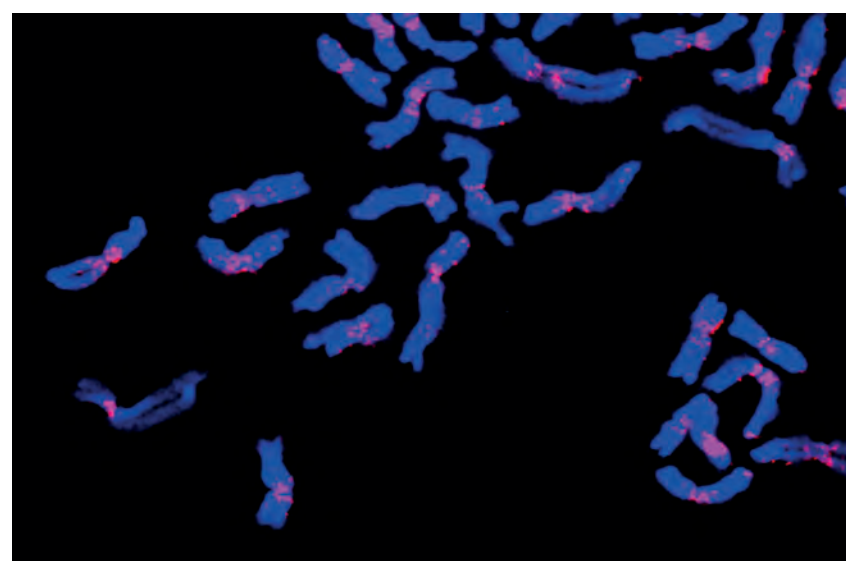
During last years, there has been a significant technological progress in FC and a number of new instruments have been, and are going to be, released to the market or developed as prototypes. New fields of application such as winemaking, dairy production, brewery, fish and animal farming, plant breeding and genomics, inner and outer water quality control, are now available to FC characterization and manipulation, and more and more are fast developing.



The First International Workshop on Exotic Flow Cytometry will focus on FC applications other than bio-medical, with the aim to highlight the different fields where flow cytometry is giving a significant contribution, in terms of new components revealed and/or development of new methods of analysis.

A wide overview of the use of FC in food and environment microbiology, plant and animal biotech, green biotechnology and genomics will be offered, as also related to the complex quality control systems of the agri-food supply chain, in the framework of the European METROFOOD - Research Infrastructure.

A demonstrative and practical hands-on day for about 30 persons will conclude the Workshop, during which a selected number of participants will also get a chance to analyze their samples.



Scientific Board

AMALFITANO STEFANO - CNR IRSA
 ARIOLI STEFANIA - UniMI
 BARCACCIA GIANNI - UniPD
 BEVIVINO ANNAMARIA - ENEA
 BOON NICO - Gent Univ. BE
 CASOTTI RAFFAELLA - SZN
 DOLEZEL JAROSLAV - IEB Ceck Rep.
 FERRINI ANNA MARIA - ISS
 FLAJSHANS MARTIN S. Bohemia - Univ. Ceck Rep.
 GALBRAITH DAVID Arizona - Univ. AZ
 GIORGI DEBORA - ENEA
 GUZZON RAFFAELE - FEM Trento
 LETER GIORGIO
 LUCRETTI SERGIO - ENEA
 MORA DIEGO - UniMI
 MULLER SUSANN - UFZ Leipzig GER
 O'CONNOR JOSE ENRIQUE - Valencia Univ. SPAIN
 RIONDATO FULVIO - UniTO
 SANCHEZ MASSIMO - ISS
 TIRELLI VALENTINA - ISS
 ZOANI CLAUDIA - ENEA

Local Organizing Committee

BALESTRA CECILIA - SZN
 CARELLA CINTIA - ISS
 CECCHETTI SERENA - ISS
 FARINA ANNA - ENEA
 D'ANDREA MARCO - ENEA
 DEL SIGNORE GIUSEPPINA - ENEA
 PRESENTI OMBRETTA - ENEA
 SPADARO FRANCESCA - ISS
 VOLPE SILVESTRO - GIC

Scientific Secretary

DE VITA RAFFAELE - GIC
 LUCRETTI SERGIO - ENEA
 TIRELLI VALENTINA - ISS

Enquires to

ENEA Casaccia Research Centre
 Department for Sustainability - Division Biotechnologies and Agroindustry
 Via Anguillarese, 301 00123 Roma - Italy Phone: 0039 063048-3191/4216/4689

Email for organization

efm2019@italymeeting.it

Email for scientif info

sergio.lucretti@enea.it - debora.giorgi@enea.it - giuseppina.delsignore@enea.it

Websites

www.enea.it - www.italymeeting.it - www.citometriagic.it



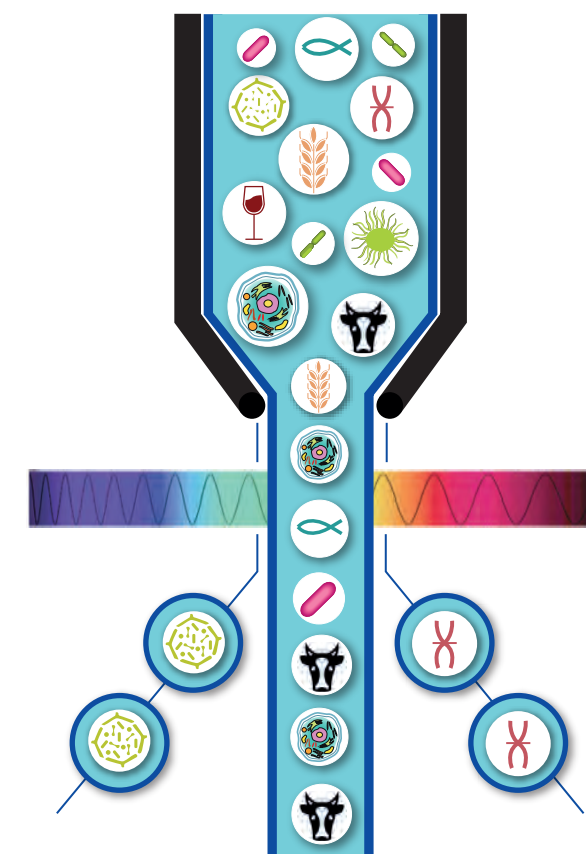
ExoFlowMetry 2019

The First International Workshop on Exotic Flow Cytometry

Checking small things... better!

13th - 15th NOVEMBER 2019 Rome - Italy

ENEA - Casaccia Research Centre 13th-14th
 ISS - Istituto Superiore di Sanità 15th



www.italymeeting.it

Supporter



Golden sponsor



Silver Sponsors



Wednesday, November 13th, 2019

ENVIRONMENTAL MICROBIOLOGY AND FOOD QUALITY

- 9.00- 9.15 • Registration
9.15 - 9.45 • Opening:
Giovanni D'Arena, President, Italian Society of Cytometry - GIC
Marco Crescenzi, Director "ISS Core Facilities", Istituto Superiore di Sanità
Massimo Iannetta, Head "Biotechnologies and Agro-industry" Division, ENEA
Eugenio Benvenuto, Head Biotechnology Lab, ENEA
- 9.45-13.30 **Session 1 Environmental Microbiology**
Chairperson: **Raffaella Casotti**, SNZ - **Stefano Amalfitano**, CNR
- Key Lecture (40min)
- **"Flow cytometry fingerprinting as microbial community indicators in aquatic systems"**
Boon Nico, Ghent University (Belgium)
 - **"The ecology in the dynamics of microbial communities"**
Müller Susann, UFZ, Leipzig (Germany)
 - **Discussion**
- 11.20-11.40 • Coffee break
Invited Speakers (20min)
- **"High-resolution microbiological process monitoring in real-time with fully automated on-line flow cytometry"**
Besmer Michael, EAWAG/onCyt, Zurich (Switzerland)
 - **"High frequency flow cytometry for the monitoring of marine microbes"**
Casotti Raffaella, SNZ, Naples (Italy)
 - **"Flow cytometry and water quality: new insights from the space research"**
Amalfitano Stefano, Water Research Institute, IRSA-CNR, Rome (Italy)
 - **SELECTED: "Counting cells in water filters"**
Vignola Marta et al., Newcastle and Glasgow, (U.K.)
 - **Discussion**
- 13.00-14.30 • Lunch - Coffee & Poster session
- 14.30 -18.00 **Session 2 Food Microbiology**
Chairperson: **Annamaria Bevivino**, ENEA - **Diego Mora**, UniMI
- Key lecture (40min)
 - **"Application of flow cytometry in the routine control of milk for the total bacterial count"**
Ferrini Annamaria and Bolzoni Giuseppe, ISS Rome (Italy) ; IZSLER, Brescia (Italy)
 - Invited Speakers: (20 min)
 - **"Flow cytometry applications in food microbiology"**
Arioli Stefania, UniMI, Milan (Italy)
 - **"Flow cytometry in the dairy sector: the role of ISO/IDF standardization"**
Orlandini Silvia, AEOS - ICAR o IBF (Italy)
 - **"Flow cytometry application in winemaking: actuality and perspectives"**
Guzzon Raffaele, Fondazione Mach, Trento (Italy)
 - **Selected: "A cytofluorimetric analysis of a S. cerevisiae population cultured in a fed-batch bioreactor"**
Palomba Emanuela et Al., SZN, Naples (Italy)
- 16.30-16.50 • Light coffee
- 16.50-17.30 • **Innovative methodologies and practical applications**
Chairperson: **Sanchez Massimo** (ISS, Rome) and **Mora Diego** (UniMI, Milan)
Short communication (15min)
- **Multi-class and multi-residue screening of antibiotics by Flow Cytometry Immunoassay**
Suarez Celia, Unisensor
 - **Flow Cytometry to monitor and improve industrial production of starter cultures and probiotics**
Moro Monica, Sacco System
 - **Nano - and Microplastics as new emerging pollutants: can Flow Cytometry be a useful technique to trace them?**
Pietrelli Loris, Sighicelli Maria, ENEA, Rome (Italy)
 - **Discussion**
- 18.00 • Departure to Rome

Thursday, November 14th, 2019

PLANT AND ANIMAL CYTOMETRY AND BIOTECH

- 09.30 - 13.30 **Session 3 Plant Biotech**
Chairperson: **Sergio Lucretti**, ENEA - **Jaroslav Dolezel**, IEB, CZ
- Keynote Lectures (40min)
- **"Future Flow: where will cytometry take us?"**
Galbraith David, ISAC and University of Arizona, Tucson AZ (USA)
 - **"Chromosome sorting helps to clone genes, sequence genomes and understand their spatial organization"**
Doležel Jaroslav, IEB, Olomouc (CZ)
 - **Discussion**
- 11.00 - 11.20 • Coffee break
Invited speakers (20min)
- **"FISHIS in FLOW: advances in plant flow molecular cytogenetics in cereals"**
Giorgi Debora, ENEA, Rome (Italy)
 - **"Flow Cytometry Applied to Plant Reproductive Biology"**
Scarolo Francesco, (UniPD), Padua (Italy)
 - **"Early in vitro screening of plant mutants by flow cytometry: looking at plants like single cells and microorganisms"**
Lucretti Sergio, ENEA, Rome (Italy)
 - **Discussion**
- 12.50-14.30 • Lunch - Coffee & Poster session
- 14.30 - 18.00 **Session 4 Animal Cytometry**
Chairperson: **O'Connor Enrique** (Univ. of Valencia, Spain), **Zoani Claudia** (ENEA, Rome)
- Key Lecture (40min)
- **"Applying flow cytometry to evaluate oxidative stress: new perspectives"**
O'Connor Enrique, Univ. of Valencia, Valencia (Spain)
 - Invited Speakers (20min)
 - **"Man's best friends and flow cytometry: dogs in the FCM lab"**
Riondato Fulvio, UniTO, Turin (Italy)
 - **"The Use of flow cytometry for study of polyploidy in freshwater fish"**
Martin Flajshans, University of South Bohemia, Ceske Budejovice (Czech Republic)
 - **"Sperm Flow Cytometry: impact of environmental toxicants on sperm health"**
Leter Giorgio, ENEA, Rome (Italy)
- 16.10-17.10 • **New instruments, new possibilities**
Short communications (15min)
Chairperson: **Galbraith David** (ISAC and University of Arizona) and **O'Connor Enrique** (Univ. of Valencia, Spain)
- **"Impedance Flow Cytometry: a versatile label-free and reliable alternative to determine viability at the single cell level (e.g. pollen and yeast)"**
Di Bernardino Marco (Amphasys)
 - **"Rapid & reliable quantification of pathogens by flow cytometry"**
Biedermann Björn (rqMicro)
 - **"Technology behind Cytoflex Platform"**
Formaro Jorge (Beckman Coulter Italia)
 - **"Sony's new ways in Flow Cytometry"**
Böhner Steffen, (Sony Biotechnology)
- 17.10 - 18.00 • **Discussion**
- 18.00 Departure to Roma
- 19.00 - 23.00 **Social event**
- **Visit to: GALLERIA BORGHESE:** a magnificent collection of Italian fine art masterworks preserved in a beautiful and well maintained renaissance Villa in Roma downtown (https://en.wikipedia.org/wiki/Galleria_Borghese)
 - **Dinner at:** Restaurant & Pizzeria "Fiore di Zucca" a Roman way of cooking at walking distance from Galleria Borghese (<https://www.facebook.com/fioredizuccaroma/>)
- 23.00 • Transport back to Hotel Globus will be provided

Friday, November 15th, 2019

ExotiCASES: demonstrative and practical course

- 08.30-9.00 • Registration - (Zampieri Hall)
- 9.00-13.30 Participants will be divided in two groups and will turn between the different demonstrations. Each participant will take part in every demonstration.
- **Analysis & sorting of nanoparticles**
Sanchez Massimo, Tirelli Valentina - (ISS lab)
 - **FISHIS- labelling and Flow sorting of Plant Chromosomes**
Lucretti Sergio, Giorgi Debora, Farina Anna - (ISS lab)
Cecchetti Serena and Spadaro Francesca will provide the support for confocal microscopy during the sorting sessions
 - **Detection of microbial populations in freshwater samples and probiotics**
Amalfitano Stefano, Arioli Stefania, Schiessl Konstanze - (Zampieri Hall)
 - **Detection and analysis of microalgae and bacteria in seawater samples**
Balestra Cecilia, Casotti Raffaella, Silovic Tina - (Zampieri Hall)
- 11.00-11.30 • Coffee break - (Zampieri Hall)
- 13.30-14.30 • Lunch - (Zampieri Hall)
- 14.30-15.30 • **Fast detection of cell viability and counting (yeast, pollen)**
Marco Di Bernardino
- 15.30-16.00 • **Discussion and Conclusions**
- Teachers:
- Amalfitano Stefano** CNR IRSA, Monterotondo, Roma
Arioli Stefania Università degli Studi di Milano, Milano
Balestra Cecilia Stazione Zoologica Anton Dohrn, Napoli
Casotti Raffaella Stazione Zoologica Anton Dohrn, Napoli
Cecchetti Serena Istituto Superiore di Sanità, Roma
Di Bernardino Marco Amphasys, Root, Svizzera
Farina Anna ENEA Centro Ricerche Casaccia, Roma
Giorgi Debora ENEA Centro Ricerche Casaccia, Roma
Lucretti Sergio ENEA Centro Ricerche Casaccia, Roma
Sanchez Massimo Istituto Superiore di Sanità, Roma
Spadaro Francesca Istituto Superiore di Sanità, Roma
Tirelli Valentina Istituto Superiore di Sanità, Roma

Location:

ISTITUTO SUPERIORE DI SANITA'

Aula Zampieri (Zampieri Hall)
Entrance from Via Gian della Bella, 34

ISS laboratory: Flow Cytometry and Microscopy Area
(ed. 15 piano A, room 5, 6)
Entrance from Via del Castro Laurenziano, 25