Dip. di Scienze Matematiche, Informatiche e Fisiche
Dip. di Scienze agroalimentari, ambientali e animali
PhD course - Agricultural sciences and biotechnology

Winter School ''Systems Biology'' - third meeting

Systems Biology and Artificial Intelligence in Agriculture

09:00 - 10:00 **AI and machine learning in plant bioinformatics**
Prof. Dick de Ridder , Wageningen University, Wageningen

10:00 - 11:00 **The root microbiome: bacterial signaling and plant health**
Dr. Vittorio Venturi, International Centre for Genetic Engineering and Biotechnology (ICGEB), Trieste

11.00 - 11.30 *Coffee Break*

11:30 - 12:30 **Estimation and prediction of vineyard yield using proximal and remote sensing in combination with data science**
Prof. Maria Paz Diago Santamaria, Universidad de La Rioja, Logroño

Tuesday, 7th of May 2024
Aula Master 1 della Nuova Biblioteca dei Rizzi,
Via Fausto Schiavi 44, 33100 Udine

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Dick de Ridder obtained a PhD in pattern recognition and bioinformatics at Delft University of Technology, after which he switched to bioinformatics and was tenured. In 2013, he was appointed professor of bioinformatics at Wageningen University, where he currently leads the Bioinformatics Group. In his research, he develops and applies algorithms and models, often involving machine learning, to study the living cell at the molecular level based on high- throughput measurements. In particular, he is interested in how to integrate measurement data with prior knowledge about a problem to be solved and how to generate results instrumental for further experimentation.

Vittorio Venturi (graduated from Edinburgh University, UK in 1988, and received his Ph.D. degree in Microbiology from the University of Utrecht, The Netherlands in 1994. During his PhD research he focused in the regulation of iron-transport processes of beneficial plant associated bacteria which promote plant growth; the monopolization of iron nearby plant roots is an important trait which keeps microbial pathogens away. He then moved as a postdoctoral fellow to the International Centre for Genetic Engineering & Biotechnology (ICGEB), Trieste, Italy, where he started investigating intercellular signaling among bacteria. He then went on to become Group Leader at ICGEB in 1998 continuing his studies on intercellular bacterial signaling. He is now interested in (i) how plant associated bacteria undergo interspecies communication and interkingdom signaling with plants and (ii) plant microbiomes and the development of microbial products for a more sustainable agriculture. He has published over 170 articles in peer-reviewed international journals, supervised 20+ PhD students and over 15 postdocs and many short-fellows from all over the world.

María Paz Diago obtained a PhD in Food Science and Agriculture at the University of La Rioja. Since then, my research has focused on the application and development of non-invasive technologies for vineyard monitoring and the assessment of key agronomical features, including vine water status, plant nutritional conditions, yield components, and grape and wine composition, mostly in the context of precision viticulture. In 2020 She became Associate Professor in the Department of Food and Agriculture of the University of La Rioja (Spain). She is currently holder of viticulture and winemaking courses in the Degree in Winemaking and Degree in Agricultural Engineering at the University of La Rioja. Since 2018 She is the Coordinator of the M.S. in Technology, Management and Innovation in Viticulture and Winemaking at the University of La Rioja. Some relevant figures of my research work include: 82 indexed papers; 11 informative papers; 81 communications in congresses (68 of them in international meetings).