

Curriculum vitae Francesco Loreto (updated March 2025)

INTERESTS AND PRESENT FIELDS OF WORK:

Plant physiology: a) Photosynthesis: estimation of the diffusion resistances to CO₂ in leaf mesophyll; relationship between electron transport rate and photosynthesis; CO₂ re-fixation in leaf mesophyll; b) Stress physiology: effect of biotic and abiotic stresses on photosynthesis limitations and plant productivity; c) Plant phenotyping: in vivo and high-throughput analysis of primary and secondary plant metabolism; d) Biosynthesis and emission of biogenic volatile organic compounds: relationship between isoprenoid emissions and photosynthesis; biogenic emissions and plant communication with other organisms; biogenic emissions and environmental pollution.

CURRENT POSITIONS: Full Professor of Plant Physiology (sector BIOS/02-A), Dept of Biology, University of Naples Federico II (2018-). Consiglio Nazionale delle Ricerche (CNR) Research Associate (2021-).

PREVIOUS POSITIONS: A) CNR Research Director (2001-2021). B) Director, CNR – Institute for Plant Protection (2009-2012). C) Director, CNR – Dept of Biology, Agriculture and Food Sciences (2012-2020).

FELLOWSHIPS AND AWARDS: CNR fellowships at the Institute of Oliviculture (1985-1986) and the University (U) of Wisconsin-Madison (1987-1990 Supervisor: Prof. T.D. Sharkey). Research associate at the U. of Wisconsin-Madison, Dept of Botany (1991-1993).

TEACHING AND MENTORING EXPERIENCE: A) Teaching courses at U. of Molise; U. of Perugia; U. of Roma I; U. of Paris XI Orsay, France; U. of Innsbruck, Austria (1999-2016) and U. of Naples (2021 -). Currently teaching courses of plant physiology (adaptation of plants to climate change). B) Member of Ph.D. committees in Italy (U. of Molise; U. of Tuscia; U. of Firenze; Campus Biomedico-Rome); and abroad (U. of Tartu, Estonia; U. Paris XI, France; U. of Balears, Spain; U. of Edinburgh, UK; U. of Eastern Finland, Kuopio, Finland). C) Presently coordinator of the National Ph.D. programme on Artificial Intelligence, specialization area Agri-food and Environment (2021 -). D) Coordinator of EC-Marie Curie post-doctoral individual fellowships (3 fellows) and of an EC-Marie Curie Research and Training Network (ISONET, Contract MRTN-CT-2003-504720); E) Tutor of 18 Ph.D. students and 22 post-docs.

ORGANIZATION OF EVENTS: Organizer and chair of many national and ten international scientific conferences and congresses. Most relevant: a) Scientific programme of the Italian Pavilion of EXPO 2015 (coordinator); b) International Conference EPSO-FESPB “Plant Biology Europe 2020” (chair of the scientific committee). Organizer of two research expeditions and field campaigns on biosphere-interactions in urban and peri-urban areas (Castelporziano Presidential Estate, Roma, Italy (2007 and 2011).

INSTITUTIONAL RESPONSIBILITIES: A) Representative of the Italian Ministry of Research in the EC “Bio-economy panel” (2006 – 2013) and in Managing Committees of COST actions. B) EPSO Supporting scientist. C) Member of i) Scientific Committees or Advisory Boards: (Ev-K2-CNR; IGBP-iLEAPS, Human Technopole; Città della Scienza of Naples); ii) agreements CNR (with CONI, FAPESP, PTP, ENI); iii) Administration Councils or Management Boards: (Start Up Materias (U. of Naples), Regione Siciliana Agrobio District; Foundation TAV-Lecco; Research area and venture capital AGRITECH-Naples); D) Currently i) President of the Joint Research Unit “Phen-Italy”, Italian node of the EC-ESFRI project on plant phenotyping infrastructures (EMPHASIS) (14 participating universities and research centers), and ii) Expert of the Ministry of Research and the University of Italy (MUR) for the European Commission – Horizon Europe Programme, area: Research Infrastructures.

EDITORIAL ACTIVITY – EVALUATOR EXPERTISE: A) Referee for main plant science international journals. B) Project evaluator and panel chair for main Italian and intl public and private funding agencies (e.g. MIUR, MISE, USDA-US, NERC-UK, Academy of Finland, ERC, AXA, and ESF). C) Editor, guest editor, or component of the editorial board of international journals and book editor. D) Member of panels evaluating Research Institutions (Bulgaria, Czech Republic and Portugal).

MAIN COMPETITIVE GRANTS: 47 competitive grants received, of which 24 as project coordinator. 16 projects funded by the European Commission (FP 4-7, Horizon 2020 and Horizon Europe; of which 8 as project coordinator - PC). Total budget raised: ca. 45 ME.

Main projects as PC: a) 1998-1999. European Commission (EC) – 4 FP Environment project "Parameterisation of environmental and physiological controls of volatile organic compound emissions from European forests, (ECOVOC)"; b) 2003-2007 EC – FP6 People - Marie Curie Research and Training Network "Ecological and physiological functions of biogenic isoprenoids and their impact on the environment" (ISONET), Contract MRTN-CT-2003-504720; c) 2004-2008 European Science Foundation – Life, Environment & Earth Science Committee, Programme "Volatile Organic Compounds in the Biosphere-Atmosphere System (VOCBAS)"; d) 2010-2013 European Science Foundation programme Ecology of Plant Volatiles (EuroVOL); e) 2017 – 2019 European Commission – Horizon 2020 Programme, MSCA-IF-2016 (project no: 746821): Photosynthetic energy balance, chloroplast integrity, carbon flow and epigenetic regulation of isoprenoid biosynthesis during leaf development and senescence: LEAF of LIFE; f) 2018-2020 Projects PRIN - COFIN 2018 (Italian Ministry of University and Research): "Plant multitrophic interactions for bioinspired Strategies of PEst ConTrol (PROSPECT)" (PC).

Main current projects: a) 2022-2027 European Commission – Horizon Europe Programme, grant agreement number 101058020: Integrated SERvices supporting a sustainable AGROecological transition (AgroServ) (Partner); b) 2022-2024 European Commission – Horizon Europe Programme, HORIZON-INFRA-2021-DEV-02-02 grant agreement number 101079772, Bringing EMPHASIS to operation: European Infrastructure for multi-scale Plant Phenomics and Simulation for food security in a changing climate (EMPHASIS-GO) (Partner); c) 2022-2040 Ministry of Research and University of Italy (MUR) EU - Recovery Funds. The Innovation INFRAstructure dedicated to AGRO-Industrial technologies (INFRAGRI). (22 Million Euro support, co-funded by agro-industry, PC); d) 2023-2025 Project PRIN 2022 (Italian Ministry of University and Research): Plants talk, but do they listen? Unveiling plant responses to incoming (foreign) volatile organic compounds (Fore-VOC) Project code: 2022ZYCCJJ. (PC); e) 2023-2025 Project PRIN-PNRR 2022 (Italian Ministry of University and Research): Looking for Plant VOC Receptors (RE-VOC). Project code: P20229ZW4A. (Partner); f) 2023-2027 Project Future in Science (FIS) 2021 (Italian Ministry of University and Research): Plants talk, but do they listen? Deciphering volatile organic compounds (VOC)-based plant alphabet (VOCVOX). Project code: FIS00000382. (PC and individual partner, 1.5 ME support).

MEMBERSHIPS AND HONORS: Member of a) Academy of Georgofili; b) Academy of Forest Science of Italy; c) Italian Society of Plant Biology.

PARTICIPATION TO INTERNATIONAL CONGRESSES: Invited speaker or session chair in more than 50 international conferences and congresses since 1990.

PUBLICATIONS: More than 260 publications on peer-reviewed, ISI indexed international journals. Metrics (March 2025): H-index: 94; citations: > 32500 (Google Scholar).

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