

Curriculum vitae et studiorum

Prof. Mario De Stefano, Ph.D.
Full Professor

Personal data: Citizenship: Italian

Date of Birth: March 24th, 1972 in Naples (Italy)

Home address: Via R. Falvo, 20, Naples (NA) – Italy; e-mail: destefanomario36@gmail.com

Work address: Department of Environmental, Biological and Pharmaceutical Science and Technology (DiSTABiF), University of Campania “Luigi Vanvitelli”, 81100 - Caserta, ITALY

Phone: +39 0823 274661, Fax: +39 0823274605; e-mail: mario.destefano@unicampania.it

Scientific activity

June 1996: M. Sc, *magna cum laude*, Biological Science, “Federico II” University of Naples, Naples, Italy

Sept. 1996 – Nov. 1997: apprenticeship for professional qualification (Biologist)

Benthos Ecology Laboratory - Zoological Station “A. Dohrn”; Naples, Italy.

Dec. 1997 - 1998: Scientific collaboration, Marine Botany Laboratory, Benthos Ecology Laboratory - Zoological Station “A. Dohrn”; Naples, Italy

Jan. 1999-Feb. 2002: Ph.D. in Marine Botany

University of Messina - Zoological Station “A. Dohrn”; Naples, Italy

Nov. 2000-2001: International Master: “Scanning Electron Microscopy: a tool for industrial quality and environment monitoring”. University of Lecce - ISUFI (Institute for advanced interdisciplinary studies) Lecce.

April 2002 – Oct. 2003: Research fellowship in the framework of the research projects: “Monitoring of the marine coastal environment of the Campania region, Italy”, and “ASTAPLAN WP 1”. Marine Botany Laboratory, Zoological Station “A. Dohrn”.

Oct. 2003 – Dec. 2004: research fellowship at the Electron Microscopy lab of Zoological Station “A. Dohrn”; Naples, Italy.

Jan. 2005: Assistant Professor (permanent position) at the Department of Environmental Science of the 2nd University of Naples, Caserta, Italy.

August 2005-2007: Principal Investigator of research projects: “Biodiversity of epiphytic diatom community on macroalgae in Iceland: a taxonomical and ultrastructural analysis” e “Taxonomic, phylogenetic and applicative investigations on microalgae living in Icelandic acidic sulphur springs” “EC-IHP”2005-2006 Sandgerdi Marine Centre, Iceland.

Sept. 2006: Organizer of the 101° Congress of Italian Society of Botany (Caserta 27-29/9/2006)

Dec. 2006: Principal Investigator of the research project: “Ultrastructural characterization and immunochemistry of the cell walls in plants and algae”. Italian Ministry of University and Researches (MIUR, 2005)

Sept. 2007: Principal Investigator of the research project: “Marine diatoms for nanotechnological applications” Italian Ministry of University and Researches (MIUR, 2006)

Dec. 2007: Principal Investigator of the research project: "Biodiversity of epiphytic diatom community on Australian *Posidonia* species" Accademia Nazionale dei Lincei.

Sept. 2008: Winner of the "International Science and Engineering Visualization Challenge", the competition sponsored by National Science Foundation and Science magazine with the contribute *"The glass forest: best world image of 2008"* (first Italian winner in the competition history).

June 2009 - Principal Investigator of the research project: "Biodiversity of epiphytic diatom community on seagrasses and macroalgae in Panama" Smithsonian Tropical Research Institute", Panama.

Nov. 2009: Winner of the "International Science and Engineering Visualization Challenge", the competition sponsored by National Science Foundation and Science magazine with the contribute *"Back to the future: best world image of 2009"*.

Jan. 2010 Attendance as member of "Antarctic Research Italian Program (PNRA)" to the "International Graduate Training Course in Antarctic Biology", McMurdo American Antarctic Station, (Ross island, Antarctica) founded by National Science Foundation (NSF), United States Antarctic Program (USAP) and University of Southern California.

April 2010 - Dec. 2014: Principal Investigator of the research project: Photonic and micromechanical properties of diatoms" FIRB - Italian Ministry of University and Researches (MIUR).

June 2010: Principal Investigator of the research project: "Biodiversity of epibenthic diatom community on Antarctic macroalgae" Antarctic Research Italian Program MIUR

Jan.-March 2011: Attendance as member of the XXVI Italian Antarctic expedition to the XXXVIII Polish Antarctic campaign at E. Arctowski" Base (Admiralty Bay, King George Island, Antarctic peninsula) founded by Antarctic Research Italian Program (PNRA) and Polish Academy of Science.

Jan. March 2012: Attendance to the XXVII Italian Antarctic expedition at "M. Zucchelli" Italian Base (Terra Nova Bay, Ross Sea, Antarctica)

Jan. March 2013: Attendance to the XXVIII Italian Antarctic expedition at "M. Zucchelli" Italian Base (Terra Nova Bay, Ross Sea, Antarctica)

March 2013: Principal Investigator of the research project: "Epiphytic Diatoms from the Arctic Coasts, RIS ID 6175" in collaboration with University of Svalbard (UNIS), founded by the Research Council of Norway.

April 2013: Principal Investigator of the research project: "Epibenthic Diatoms from Brunei Estuarine System (BES)" in collaboration with the Department of Biology, University of Brunei Darussalam (Prof. David John Marshall).

May-June 2013: Visiting Professorship at Department of Biology, University of Brunei Darussalam and attendance, in the frame work of the project "Epibenthic Diatoms from Brunei Estuarine System (BES)" to a scientific expedition in Timburong National Reserve.

July 2013: Visiting Professorship at University of Svalbard and attendance, in the frame work of the project "Epiphytic Diatoms from the Arctic Coasts, RIS ID 6175", to Norwegian scientific expedition "Micro FUN" along the coasts of Svalbard Islands, Norwegian sector, Arctic Circle.

Oct. 2013: Principal Investigator of the research project: "Comunidades marinas de diatomeas epizoóticas, epibiontes y parásitos en tortugas marinas de Costa Rica: un análisis taxonómico, ultraestructural y biogeográfico" founded by MIUR and Escuela de Biología, Universidad de Costa Rica (Resolución ACT-OR-DR-074-13). (Prof. Bolaños Vives).

Dec. 2013: Principal Investigator of the research project: "Photonic properties of diatom for nanotechnological applications" funded by L.R. 28.03.2002, n. 5, Campania, MIUR.

March 2014: Visiting Professorship at "Red Sea Centre" and "Physical Science & Engineering Division of King Abdullah University of Science and Technology (KAUST)", Saudi Arabia.

June 2014: Visiting Professorship at College of Agricultural and Marine Sciences, Sultan Qaboos

University (SQU), Sultanate of OMAN.

Oct. 2014: Visiting professorship at Escuela de Biología, Universidad de Costa Rica and attendance, in the framework of the project “Comunidades marinas de diatomeas epizoóticas, epibiontes y parásitos en tortugas marinas de Costa Rica: un análisis taxonómico, ultraestructural y biogeográfico”.to a scientific expedition in Tortuguero and Corcovado National Park.

Dec. 2014: Winner of “SCAR Visiting Professor Award”, founded by SCAR (Scientific Committee on Antarctic Research).

April. 2015: Appointment as Associate Professor (Head of Botany Group) at the Department of Environmental, Biological and Pharmaceutical Science and Technology, The 2nd University of Naples, Caserta, Italy

April. 2015: Scientific Qualification to Full Professor.

Oct. 2015: Research campaign in Guatemala in the framework of the research project: “Comunidades marinas de diatomeas epizoóticas, epibiontes y parásitos en tortugas marinas de Guatemala: un análisis taxonómico, ultraestructural y biogeográfico” founded by MIUR and coordinated by ARCAS.

Jan. 2016: Attendance to the LII Chilean Antarctic Expedition at “Escudero Base” (Fildes Bay, King George Island, Antarctic peninsula) founded by “SCAR Visiting Professor Award” and SUN funds for International relationship.

Feb. 2016: Visiting Professorship at Faculty of Biological Science, Shahid Beheshti University of Tehran, I.R. of Iran.

Sept. 2016: Research campaign in Iranian water of Persian Gulf in the framework of the research project: “Epibenthic diatom communities on marine turtles: a floristic, ecological and biogeographical analysis” founded by MIUR and coordinated by Shahid Beheshti University of Tehran, I.R. of Iran.

Oct 2016-Jan 2017: Research period at College of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN.

Feb. 2017: Research period at New York University, Abu Dhabi (NYU), United Arab Emirates.

Feb. 2017: Principal Investigator of the research project: “Biodiversity of epizoic diatom community on marine turtles from Omani coasts” founded by the Centre of Excellence in Marine Biotechnology (CEMB) and the college of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN.

June 2017: Visiting professorship at the Faculty of Science and Liberal Arts of Duke University, Durham, NC, USA.

July 2017: Visiting professorship at “Universidad de San Francisco de Quito (USFQ), Quito, Ecuador “and invitation to attend the “II Symposium de Investigación y Conservación en Galápagos.

July 2017: Research campaign at Hispaniola and San Cristobal Islands (Galapagos Islands) in the framework of the research project: “ Epizoic diatom communities on marine turtles and Iguanas from Galapagos Islands: a taxonomical, ecological and bio-geographical analysis” founded by University of Campania internal grant in collaboration with the Universidad de San Francisco de Quito (USFQ) and the Galapagos Science Center (GSC).

Oct 2017-Feb 2018: Research period at Centre of Excellence in Marine Biotechnology (CEMB) of the College of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN, in the framework of the research project: “Biodiversity of epizoic diatom community on marine turtles from Omani coasts”.

June 2018: Principal Investigator of the research project: “First survey of epibenthic diatom communities on marine invertebrates from Omani coasts: a taxonomical, ecological and biomimetic analysis” founded by the Centre of Excellence in Marine Biotechnology (CEMB) of

Sultan Qaboos University (SQU) and the Oman Animal and Plant Genetic Resources Center (OAPGR), Sultanate of OMAN.

Oct 2018-Feb 2019: Research period at Centre of Excellence in Marine Biotechnology (CEMB) of Sultan Qaboos University (SQU), Sultanate of OMAN, to coordinate the joint research project: “First survey of epibenthic diatom communities on marine invertebrates from Omani coasts: a taxonomical, ecological and biomimetic analysis” founded by Sultan Qaboos University (SQU) and the Oman Animal and Plant Genetic Resources Center (OAPGR), Sultanate of OMAN.

Research Activities

Prof. De Stefano is involved in researches focused on taxonomy, ecology and phylogeny of benthic diatom communities worldwide and on their potential use for micro and nanotechnological applications in the fields of optics, mechanics and biosensing. Recently he was also a promoter and coordinator of some projects on Bioinspiration and Biomimetic. These research activities involve several collaborations with national and international scientific institute, university and private companies.

More in detail the main research lines include:

1) Taxonomy, ecology and phylogeny of diatom communities

- *Morphology, ultrastructure, phylogeny and ecology of planktonic and benthic diatoms in temperate, tropical and polar areas*
- *Taxonomical revision of monoraphid diatoms and description of new species*

2) Use of diatom for micro and nanotechnological application

- *Nanophotonic applied to diatoms*
- *Nanobiosensing applied to diatoms*

3) Relationships between plants, microorganisms and environment: ultrastructural and ecological analysis

- *Microphytobenthic and microbial communities of extreme environments*
- *Relationships of microorganisms and endophytic fungi with plants*

4) Bioinspiration & Biomimetics

MAIN APPLIED TECHNIQUES

Field sampling methods for benthic and planktonic microalgae; Microalgal culture methods; Identification of phytobenthonic taxa at light, scanning and transmission microscopy; Standard Scanning electron microscopy (SSEM), Cold Field Emission gun Scanning electron microscopy (CFEG-SEM), Low vacuum Scanning electron microscopy (LVSEM), Environmental Scanning electron microscopy (ESEM); SEM preparative techniques (CPD, Swinnex methods), Transmission electron microscopy (TEM), Tem standard methods (except cutting), Qualitative and quantitative SEM analysis on phytoplankton and phytobenthic samples; Photo-editing

Scientific publication (see the attached list)

Prof. De Stefano, to date, is author of 87 peer reviewed papers, a monograph, 7 reviews and more than 100 proceedings of national and international conferences.

As part of his research, he described and formally established 4 genera, 11 species and 7 new varieties of diatoms.

He works as a referee with several peer reviewed journal including: *Diatom Research*, *European Journal of Phycology*, *Journal of Nanoscience and Nanotechnology*, *Journal of Phycology*, *Phycologia*, *Polar Biology*, *Antarctic Science*, *Antarctic Research*, *Aquatic Botany*, *Botanica Marina*, *Plos One*

Academic Degree

Academic Degree at University of Campania "Luigi Vanvitelli" (from 2005-current year)

Botany	6CFU	(Degree in Biotechnology, from 2005-current year)
Marine Biology	6CFU	(Degree in Environmental Science, from 2005-current year)
Marine Botany	6CFU	(Degree in Environmental Science, from 2005-current year)
Fundamental Biology	9CFU	(Degree in Environmental Science, from 2014-current year)

1 CFU (University Formative Credits) = 8 teaching hours

Board member in the International Ph.D. in "Innovative Physic methodology for Environmental research" (Academic years 2007-2012)

Board member in the International Ph.D. in "Environment, Design and Innovation" (Academic years 2012- current)

Board member in the "ERASMUS Committee" for DiSTABiF (Academic years 2012- current)

Board member in the "Committee on International Affairs" for DiSTABiF (Academic years 2012-current)

Board member in "CONISMA" (Academic years 2008- 2016)

Other Academic activities

17-24 Oct. 2009 – Faculty of the Stage "Marine tropical ecology". University of Milano Bicocca, Sharm El sheik, Egypt.

7-15 April 2010 - Faculty of the Stage "Marine tropical ecology". Marine Research and high education center (MaRHE) of University of Milano Bicocca, Magoodhoo, Republic of the Maldives.

12-20 Feb. 2012 - Faculty of the Stage “Marine tropical ecology”. Marine Research and high education center (MaRHE) of University of Milano Bicocca, Magoodhoo, Republic of the Maldives.

11-19 June 2013 - Faculty of the Stage “Marine tropical ecology”. Marine Research and high education center (MaRHE) of University of Milano Bicocca, Magoodhoo, Republic of the Maldives.

29 Sept. - 6 Oct. 2013 - Faculty of the Stage “Marine tropical ecology”. University of Milano Bicocca, Dahab, Egypt.

11-21 Feb. 2014 - Faculty of the Stage “Marine tropical ecology”. Marine Research and high education center (MaRHE) of University of Milano Bicocca, Magoodhoo, Republic of the Maldives.

16-18 Nov. 2016 - Course on Standard Scanning Electron Microscopy (sSEM). Centre of Excellence in Marine Biotechnology (CEMB) of the College of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN.

7-9 Dec. 2016 - Course on Advanced Scanning Electron Microscopy (sSEM). Centre of Excellence in Marine Biotechnology (CEMB) of the College of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN.

2-3 Nov. 2017 - Training course on Standard Scanning Electron Microscopy (sSEM). Centre of Excellence in Marine Biotechnology (CEMB) of the College of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN.

9-11 Jan. 2018 - Training course on Advanced Scanning Electron Microscopy (sSEM). Centre of Excellence in Marine Biotechnology (CEMB) of the College of Agricultural and Marine Sciences, Sultan Qaboos University (SQU), Sultanate of OMAN.

Foreign language: Fluent English, Fluent Latin, Basic Spanish

National and International Awards:

2001 - ZEISS Company award for the International Master: “Scanning Electron Microscopy: a tool for industrial quality and environment monitoring”. University of Lecce - ISUFI (Institute for advanced interdisciplinary studies), Lecce, Italy.

2008 - AAAS and National Science Foundation award for “International Science and Engineering Visualization Challenge, Best world image of the year, ed. 2008” published in “Science”, 26/9/2008.

2009 - AAAS and National Science Foundation award for “International Science and Engineering Visualization Challenge, Best world image of the year, ed. 2009” published in Science, 19/2/2010.

2009 - "Letter of Appreciation" of the American Ambassador in Italy, S.E. Donald. R. Spogli in recognition of the bi-annual win in the “International Science and Engineering Visualization Challenge”.

2010 - "Leonardo award of Salerno city" for scientific career, Salerno Italy.

2010 - Recognition for scientific career of Naples Major On. Rosa Russo Iervolino

2011- "Plaque of Appreciation" of the American Consul in Italy, S.E. Donald Moore in recognition of scientific results obtained from researches founded by "National Science Foundation".

2013: "Leonardo award of Salerno city" for science divulgation, Salerno Italy.

2014 – "SCAR Visiting Professor Award", SCAR (Scientific Committee on Antarctic Research).

Scientific consultant activity in Scanning Electron Microscopy

Prof. De Stefano has a deep knowledge in the fields of standard and advanced Scanning Electron Microscopy gained in the framework of the International Master "Electron Microscopy: a tool for industrial quality and environment monitoring" and consolidate over 14 years of research in the field. Throughout his career he has deepened the principles and techniques of cold and warm Field Emission Scanning Electron Microscope (FESEM), Low Vacuum (LV), Ion Beam (FIB) and Environmental Scanning Electron Microscope (ESEM) as well as Energy Filtered Transmission Electron Microscope (EFTEM). He has develop innovative methods of sample preparation and observation techniques optimized for bacterial biofilms, planktonic, benthic and terrestrial micro-communities as well as a more efficient way to study their community structure and dynamics following what has been defined an "ultrastructural-based micro-ecological approach" .

As scientific consultant has been collaborated with the main electron microscopy companies (FEI Company, Eindhoven, The Netherlands, Jeol Europe, Paris, Hitachi Europe, Germany) and has been involved in the faculty of several theoretical and practical courses of electron microscopy at national and international level.

Affiliation to Scientific Societies

International Society for Diatom Research (IDS) from 1999;

European Microscopy Society (EMS) from 2000;

Società Botanica Italiana (SBI) from 2002;

Federation of European Phycological Society (FEPS) from 2010.