

PERSONAL INFORMATION

Graziano Fiorito

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Sex: Male | Date of birth: 04/07/1957 | Nationality: Italian

PROFESSIONAL EXPERIENCE

FROM JUNE 2020

DIRECTOR OF RESEARCH (LEVEL 1)**DEPARTMENT OF BIOLOGY AND EVOLUTION OF MARINE ORGANISMS**

Stazione Zoologica Anton Dohrn, Naples

BEHAVIORAL BIOLOGY, NEURAL PLASTICITY

JAN 30, 2015 - SEPT 2, 2018

COORDINATOR, DEPARTMENT OF BIOLOGY AND EVOLUTION OF MARINE ORGANISMS

Stazione Zoologica Anton Dohrn, Naples

Head of Department;

The management and planning responsibilities are specific to the role, including the management of funds allocated to the Department and its staff.

The competences of the 'Department Coordinator' include active participation in consultations for strategic decisions as a Member of the Council of Departments of the Stazione Zoologica

FROM 2014 TO 2017

COORDINATOR**Technical Support Unit for the *Assessment of Institutional Performance***

Stazione Zoologica Anton Dohrn, Naples

NOV 2014 – JAN 2015

ACTING COORDINATOR

Department of Biology and Evolution of Marine Organisms

Stazione Zoologica Anton Dohrn, Naples

FROM 2013 TO 2017

MEMBER MC, COST ACTION FA1301

Management Committee

COST Action FA1301, CephInAction - 'A network for improvement of cephalopod welfare and husbandry in research, aquaculture and fisheries' acting member of the Management Committee for Italy appointed by the Stazione Zoologica Anton Dohrn, Naples

FROM 2012 TO 2014

COORDINATOR

Animal Physiology and Evolution Laboratory

Coordination of the Laboratory's research activities (organizational structure equivalent to small departments) including management responsibilities

Stazione Zoologica Anton Dohrn, Naples

- FROM 2012 TO 2014** **MEMBER**
Technical Support Unit for the **Assessment of Institutional Performance**
Stazione Zoologica Anton Dohrn, Naples
- FROM 2009 TO 2014** **DEPUTY DIRECTOR-GENERAL**
Stazione Zoologica Anton Dohrn, Naples
- FROM 2012 TO 2014** **COORDINATOR**
ASSEMBLE Project (SZN node)
Association of European Marine Biological Laboratories
contact person responsible for 'international access', project assessment
and feasibility check, reporting, organization and management
Stazione Zoologica Anton Dohrn, Naples
- FROM 2011 TO 2013** **PROCEDURE CONTROLLER**
for the **Research Quality Assessment procedure**
(VQR 2004-2010 – ANVUR)
Stazione Zoologica Anton Dohrn, Naples
- JULY 2011** **CO-DIRECTOR AND CO-ORGANIZER**
Second IBRO-KEMALI School
Mediterranean School of Neuroscience
Invertebrate Neurobiology, Neuroethology and Plasticity
IBRO – International Brain Research Organization
& Stazione Zoologica Anton Dohrn, Naples
- FROM 2009 TO 2011** **MEMBER- Advisory Board**
“Novel Design Principles and Technologies for a new Generation of High
Dexterity soft-bodied Robots inspired by the Morphology and Behavior of
the Octopus” – OCTOPUS Integrating Project (IP) funded by the European
Commission in the ICT-FET Programme “Embodied Intelligence”
Project Coordinator: Prof. Cecilia Laschi
Scuola Superiore S. Anna, Pisa
- FROM 2008 TO 2010** **COORDINATION of Meetings of the Scientific Council of the Zoological Station**
organizing the programme and materials prepared for the meetings of the
Scientific Council and Review Panels on behalf of the President's Office
Stazione Zoologica Anton Dohrn, Naples
- FROM 2006 TO 2013** **Health and Safety Officer**
Appointed pursuant to Art. 16 of Legislative decree 81/08
Stazione Zoologica Anton Dohrn, Naples

- 2003** ***Assistant to the Director General***
for the preparation of **Research Evaluation Reports (CIVR)**
Stazione Zoologica Anton Dohrn, Naples
- FROM 1999 TO 2020** **FIRST RESEARCHER (LEVEL II)**
Behavioural Biology & Neuroscience
Stazione Zoologica Anton Dohrn, Naples
- FROM 1989** ***GROUP LEADER***
Behavioural Biology and Learning
Assuming the role subsequent to a Scientific Council meeting coordinated by the President, Prof. G. Salvatore working with the then Neurobiology Laboratory
Stazione Zoologica Anton Dohrn, Naples
- FROM 1988 TO 1996** **SUPERVISOR**
Special Scientific and Bibliographic Documentation Service
Creation, coordination and implementation of the Information Retrieval services in support of the scientific research of the Institution.
Stazione Zoologica Anton Dohrn, Naples
- FROM 1983 TO 1999** **RESEARCHER (LEVEL III)**
Behavioural Biology
Stazione Zoologica Anton Dohrn, Naples
- FROM 1979 TO 1983** **Teacher**
Teaching in the "Scientific Subject" area (Mathematics and Sciences)
Working in Italian State Schools for the Naples Department of Education

EDUCATION AND TRAINING

- 1997** **Visiting Scientist**
Neuroscience Department
Cold Spring Harbor Laboratory, NY (USA)
[short term visit]
(introduction to molecular neuroscience and physiology)
- 1984; 1985** **Visiting Scientist**
American Museum of Natural History, NY (USA)
[short term visits; also including a field research project (3wks) in Puerto Rico]
social behavior; comparative psychology

- 1982-1983** **Visiting Scientist**
 (volunteer attendee –work-lab bench)
 Neurobiology Laboratory
 Stazione Zoologica Anton Dohrn, Naples
- 1982** **Visiting Scientist**
 Museum of Comparative Zoology
Harvard University, Cambridge (USA)
 [short term visit]
 introduction to behavioral evolution and social behavior
- 1981-1983** **Intern**
 Institute of Zoology
 Federico II University of Naples
 Naples
- 1981-1982** **Visiting Scientist**
 (volunteer attendee – work-lab bench)
 Biochemistry Laboratory
 Stazione Zoologica Anton Dohrn, Naples
- 1975-1979** **DEGREE IN BIOLOGY**
 mark: 110/110 cum laude
cum laude(with recommendation for publication)
 Federico II University of Naples
 Naples
- 1970-1975** **Grammar School Leaving Certificate**
 Liceo Ginnasio (High School specializing in the Classics)G.B. Vico – Naples
 mark: 38/60

PERSONAL SKILLS

Native language Italian

Other languages

	COMPREHENSION		SPEAKING		WRITING
	Listening	Reading	Interaction	Production	
English	C2	C2	C2	C2	C2
Replace with the name of the language certificate obtained. Insert the level, if known					

Levels: A1/A2: Basic user 1970-1975 B1/B2: Intermediate user 1970-1975 C1/C2: Advanced user
[Common European Framework of Reference for Languages](#)

I have excellent communication skills acquired during my post-graduate studies and research experiences abroad, taking part in conferences and workshops, and through my daily work, including mentoring students and early-career collaborators (in many cases non-Italian; from UK, France, Belgium, USA, Japan).

Communication skills have also been extended thanks to the numerous interactions with partners, stakeholders and collaborators through managing and coordinating institutional and non-institutional activities.

Organizational and management skills

I am able to manage and coordinate the work of several people belonging to diversified groups, possessing different know-how, expertise and nationalities.

I have significantly broadened my organizational and management skills thanks to my experience in coordinating groups during management, coordination and institutional and extra-institutional tasks and duties.

Some examples are: *i.* implementation and management of the network services, *ii.* Information Retrieval for the scientific research and the bibliometric and scientometric evaluation, *iii.* Deputy Health and Safety Officer (pursuant to Legislative Decree 81/08 and subsequent amendments and integrations), *iv.* Deputy Director General, also coordinating the institutional performance evaluation structure, *v.* coordination of institutional projects, *vi.* coordination of the evaluation of the SZN research, *vii.* Coordinator/director of the SZN organizational structures.

Assignments that expanded my management skills in sectors other than scientific research, working at the service of the institution.

As of early 2000, my responsibilities have grown both in terms of the resources under my care and the complexity of the position and duties. I have coordinated a variety of institutional research projects relating to the implementation of instrumental and higher education skills, in addition to coordinating international networking projects (e.g., POR MO.DO, BioForIU, ASSEMBLE), all of which have enhanced my intra- and extramural management experience and skills.

During my years assisting the Presidency of the SZN **coordinating the agenda for the Institute Scientific Council**, I had the opportunity to led a small internal logistic organization group, but above all to coordinate the activities and meetings of the Scientific Council and the *ad hoc* Review Panel (Biology, Ecology). I prepared all the policy papers and the institutional reports, taking care in detail of the drafting and coordinating the final text, collecting and editing the contributions of individual SZN researchers, including the preparation of data and the classified reports of the President's Office at the Scientific Committee sessions. In conjunction with the President's Office I worked on the drafting and publication of the classified (Board of Directors) and public (SZN researchers) editions of the final reports of the Scientific Committee.

My interaction with the members of the Scientific Committee (which includes three Nobel Prize winners) has been consistently carried out with due respect for the established roles and carefully avoiding any conflict of interest, guaranteeing full and complete transparency, ensuring that only institutional aims and interests are fulfilled, maintaining and ensuring an atmosphere of full open cooperation.

During my years as **Deputy Director General of the SZN**, in addition to my responsibility as signatory for day-to-day administration (including all necessary checks) I contributed to drafting the Institutional policy papers, preparing the accompanying notes and the reports for the Financial Statements, in particular the parts relating to scientific activities and technical-scientific management.

I also organized a number of public selection procedures, including bibliometric and scientometric assessment, applied for the first time in job-selection procedures within the SZN. I assisted the Management and President's Office in organizing legal support when the Administration was subject to legal action regarding the conduct of public selection proceedings. All these actions resulted in the complete satisfaction of the Public and Administrative Legal Authorities regarding the validity and correctness of the selection procedures adopted by the SZN.

I managed and carried out the first **scientometric evaluation procedures of the SZN research** (CIVR and VQR-ANVUR) on behalf of the Stazione Zoologica.

The years during which I served as Deputy Director General also represented the first years of implementation - for Public Research Bodies - of the Transparency, Anti-Corruption, **Performance Assessment** regulations - in compliance with the application of sector regulations for the Public Administration - and the application of **spending review** principles.

The institutional tasks carried out in this sense have ensured the further acquisition of management experience and of the principles inspiring good practice

The direct collaboration with ANVUR for the transposition of the principles of Performance Evaluation to the EPR represented a further opportunity for me to expand the knowledge and experience acquired. As a Deputy Director General I contributed to and edited all the internal preparatory documents and those for the Ministry, in relation to the so-called "spending review".

My **involvement in international research networks** has further contributed to expanding my networking experience and my ability to interact with different people and groups. My involvement in COST Action FA1301 made possible direct active participation in the international changes relating to the European scientific research policy with particular regard to the implementation of Directive 2010/63/EU for the use of cephalopod mollusks in scientific research. This favored also the development of projects of international significance also linked to increase the visibility of the international scientific community (cephalopods).

Professional skills

Behavioural biology;
Biological and Cognitive Evolution;
Learning and Memory;
Neuroscience.

Over the years, I carried out and guided scientific research activities using different approaches, aimed at applying different methodologies and developing new lines and research strategies with particular attention to marine invertebrates and especially cephalopod mollusks.

Immediately after graduating in Biology I began my studies as an intern at the Institute of Zoology of the University of Naples. During this period, I deepened my knowledge of general systematics and taxonomy also applied to the taxon covered by my thesis (Arthropoda, Insecta, Lepidoptera). At this time, I became interested in numerical taxonomy and the evolution of behavior. One of the main themes of my scientific work.

My experience abroad and the start of my work at the Stazione Zoologica led me further into the **study of the biology of behavior, learning and memory**, and the study of the biological **mechanisms underlying neural and behavioral plasticity**.

Over the years, I have also developed a strong interest in the 'pain system' and 'animal welfare'.

The strong propensity to integrate disciplines and approaches has matured since the early years of my research activity, also thanks to the interaction with those I consider my Mentors (from 1982 to 1992): Drs H. MALDONADO (Universidad de Buenos Aires, Argentina; octopus & crab, learning and memory), M. MOYNIHAN (Smithsonian Tropical Research Institute, Panama; cephalopods, behavior – https://en.wikipedia.org/wiki/Martin_Moynihan), G. SALVATORE (international research, molecular research – e.g., https://it.wikipedia.org/wiki/Gaetano_Salvatore), E. TOBACH (comparative psychology – see for example: https://en.wikipedia.org/wiki/Ethel_Tobach).

I have been guiding students for degree theses since 1984 and since the beginning of the 1990's also PhD students (see Mentoring) assuming full and exclusive responsibility for their tutoring and supervision.

The focus towards the study of animal species of invertebrates and especially cephalopod mollusks has been one of the guiding principles of all my research activities.

Since the end of 1986 I have focused my experimental activity on the study of the learning abilities of the Cephalopod Mollusk *Octopus vulgaris* using 'behavioral' methodologies, but adopting and integrating organismal biology and behavioral biology approaches, including neuroscience.

Thanks to my strong spirit of international networking and open collaborative relationship, I have been able to undertake pioneering research that has promoted a new scientific interest in the study of behavioral biology and neurophysiology in the species of interest, which has driven international research at least in the last two decades.

The ability of *Octopus vulgaris* to learn and distinguish between objects has long been an object of study, especially through the work of Prof. J.Z. Young and his students and collaborators at the Stazione Zoologica. The studies in question show that these animals have sophisticated learning skills and extraordinary *memory recall* abilities, integrating visual and tactile sensory/motor

modalities. These studies represented one of the first approaches to the analysis of the neural correlate of behavioral plasticity.

In the course of my scientific career I have taken the legacy of J.Z. Young and B. Boycott contributing to promote research aimed at the standardization of approaches and behavioral paradigms for the study of the species, encouraging the application of methodologies, approaches, promoting their integration and thus stimulating frontier research that have - in fact - further influenced the scientific 'visibility' of the species and the knowledge of its biological plasticity.

My work on the **standardization of experimental procedures as applied to cephalopods** earned me recognition as European Commission reference for the implementation of the European Directive 2010/63/EU regarding experiments with cephalopods. Together with some young colleagues I promoted and coordinated the development of the first *Guidelines* for the care, management and animal welfare of cephalopod mollusks in the context of scientific research, the only ones among invertebrates.

Interest in **animal welfare** has always been conducted with the adoption of integrated approaches including physiology, molecular biology, neuroscience and behavioral sciences. My mentoring role with the younger generations of students and colleagues has further enhanced my professional skills.

The study of **problem-solving** and **social learning** capabilities in *O. vulgaris* are still considered pioneering and have prompted criticism in the scientific community by increasing their resonance; criticism that has never led to contradict our findings. For the first time I began to study **biological and behavioral plasticity and the processes that drive inter-individual variation** in *O. vulgaris*.

I have accrued experience in promoting, creating and managing international projects focusing on aspects of biology, physiology and neurobiology of marine invertebrates with special attention to cephalopod mollusks; I also have extensive international experience studying the biology of these marine organisms, emerging models of research in the field of fundamental and applied biology.

The experiments initiated and conducted by me - also thanks to some collaborators -, have significantly promoted *i.* international standardization in scientific research in the field of cephalopod mollusk behavior biology and physiology, *ii.* the discovery that these animals – despite the solitary lifestyle - are able to learn from conspecifics, *iii.* the modern characterization of **neural regeneration processes** (*O. vulgaris*, e.g., pallial nerve), *iv.* comparative analysis of **neural novelties** in cephalopods, their functional analogies with higher vertebrates and evolutionary and adaptive path to cognition and underlined neural complexity, *v.* novel **neurophysiological** approaches to develop and characterize the **cellular analogy of learning (LTP)**, i.e. slice preparation and in vivo, *vi.* **molecular neuro science** and **neuro-morphology** approaches to the study of **neural modulation** and the plastic capability of the nervous system underlying learning in *Octopus*.

IT skills

SELF-ASSESSMENT				
Processing information	Communication	Content creation	Security	Problem solving
Advanced user	Advanced user	Advanced user	Advanced user	Advanced user

Levels: Basic user - Intermediate user - Advanced user

- Excellent knowledge of MS-OFFICE packages (Word, Excel, Power-Point, etc.).
- Excellent knowledge of Relational Databases (MS-Access, RBase) and Reference Manager-sw
- Excellent knowledge of systems of analysis by video recording of behavioral performance
- Excellent knowledge of Adobe suite: Graphic Design (InDesign, Illustrator, Photoshop).
- Excellent knowledge of statistical software: SPSS

Driving licence B

FURTHER INFORMATION

Publications
International, subject to
peer review

In press publications

De Sio F., Hanke F.D., Warnke K., Marazia C., Galligioni V., **Fiorito G.**, Stravidou I., Ponte G. (*in press*). E pluribus Octo -Building consensus on standards of care and experimentation in cephalopod research; a historical outlook. *Frontiers in Physiology*

Tedesco P., Bevilacqua S., **Fiorito G.**, Terlizzi A. (*accepted for publication*). Global patterns of parasite diversity in cephalopods. *Scientific Reports*

Chiandetti C., De Sio F., Ponte G., **Fiorito G.** (*In Press*). Challenging cephalopods behavioural and neural plasticity: sociality, territorial behaviour and “mind-reading”. In: *Mind Reading Brains*. Eds Grasso F., Burgos J.E., Garcia-Leal O., Akram R.S.; Springer

Chellapurath M., Stefanni S., **Fiorito G.**, Sabatini A.M., Laschi C., Calisti M., (2020). Locomotory behaviour of the intertidal marble crab (*Pachygrapsus marmoratus*) supports the underwater spring-loaded inverted pendulum as fundamental model for punting in animals. *Bioinspiration & Biomimetics – on line first*

Pubblicazioni submitted - in peer review

Ponte G., Taite M., Borrelli L., Allcock A.L., Fiorito G. (*under review*). Cerebrotypes in cephalopods: brain diversity and its correlation with species habits, life history and physiological adaptations. *Frontiers in Neuroanatomy*

O’Brien C., Borrelli L., **Fiorito G.** (*under review*). Does Personality explain Behavioral Variation in *Octopus vulgaris*? Two Personality Traits inferred by Factor Analysis. *Animal Behaviour*

Tedesco P., Caffara M., Gustinelli A., **Fiorito G.**, Fioravanti M. (*under review*). SEM study of cestode larvae parasitic in *Octopus vulgaris* (Mollusca, Cephalopoda) from Tyrrhenian Sea (Central Mediterranean) with molecular characterization of Tetraphyllodean and Onchoproteocephalidean plerocercoids. *International Journal for Parasitology*

Pubblicazioni scientifiche peer-reviewed (n = 63)

(most recent first)

1. Borrelli L., Chiandetti C., **Fiorito G.** (2020). A standardized battery of tests to measure *Octopus vulgaris*' behavioural performance. *Invertebrate Neuroscience* **20**: doi.org/10.1007/s10158-020-0237-7
2. Imperadore, P., Parazzoli, D., Oldani, A., Duebbert, M., Büschges, A., and **Fiorito, G.** (2019). From injury to full repair: nerve regeneration and functional recovery in the common octopus, *Octopus vulgaris*. *The Journal of Experimental Biology*, **222**: jeb209965. doi: 10.1242/jeb.209965.
3. Frasnelli, E., Ponte, G., Vallortigara, G. and **Fiorito, G.** (2019). Visual Lateralization in the Cephalopod Mollusk *Octopus vulgaris*. *Symmetry*, **11**: 1121. doi: 10.3390/sym11091121.
4. Ponte G., Andrews P., Galligioni V., Pereira J., **Fiorito G.** (2019). Cephalopod welfare, biological and regulatory aspects: an EU experience. In: *The Welfare of Invertebrate Animals*. Eds Carere C. & Mather J.; Springer p. 209-228
5. Cooke, G.M., Anderson, D.B., Begout, M.-L., Dennison, N., Osorio, D., Tonkins, B., Kristiansen, T., **Fiorito, G.**, Galligioni, V., Ponte, G., and Andrews, P.L. (2019). Prospective severity classification of scientific procedures in cephalopods: Report of a COST FA1301 Working Group survey. *Laboratory Animals*, **53**: 541-563
6. Amodio, P., Boeckle, M., Schnell, A.K., Ostojic, L., **Fiorito, G.**, and Clayton, N.S. (2019). Shell Loss in Cephalopods: Trigger for, or By-Product of, the Evolution of Intelligence? A Reply to Mollo *et al.*. *Trends in Ecology & Evolution*, **34**: 690-692. doi: 10.1016/j.tree.2019.05.005.
7. Imperadore, P., Lepore, M.G., Ponte, G., Pflueger, H.J. and **Fiorito, G.** (2019). Neural pathways in the pallial nerve and arm nerve cord revealed by neurobiotin backfilling in the cephalopod mollusk *Octopus vulgaris*. *Invertebrate Neuroscience*,

- 19: 5. doi: 10.1007/s10158-019-0225-y.
8. Zarrella, I., Herten, K., Maes, G.E., Tai, S., Yang, M., Seuntjens, E., Ritschard, E.A., Zach, M., Styfhals, R., Sanges, R., Simakov, O., Ponte, G., and **Fiorito, G.** (2019). The survey and reference assisted assembly of the *Octopus vulgaris* genome. *Scientific Data* **6**: 13. doi: 10.1038/s41597-019-0017-6.
 9. Amodio, P., **Fiorito, G.**, Clayton, N.S. and Ostojić, L. (2019). Commentary: A Conserved Role for Serotonergic Neurotransmission in Mediating Social Behavior in octopus. *Frontiers in Behavioral Neuroscience*, **13**: 185 doi: 10.3389/fnbeh.2019.00185.
 10. Amodio, P., Boeckle, M., Schnell, A.K., Ostojić, L., **Fiorito, G.**, and Clayton, N.S. (2019). Grow Smart and Die Young: Why Did Cephalopods Evolve Intelligence? *Trends in Ecology & Evolution*, **34**: 45-56. doi: 10.1016/j.tree.2018.10.010.
 11. Styfhals, R., Seuntjens, E., Simakov, O., Sanges, R., and **Fiorito, G.** (2019). In silico Identification and Expression of Protocadherin Gene Family in *Octopus vulgaris*. *Frontiers in Physiology*, **9**: 1905. doi: 10.3389/fphys.2018.01905.
 12. Imperadore, P., and **Fiorito, G.** (2018). Cephalopod Tissue Regeneration: consolidating over a century of knowledge. *Frontiers in Physiology*, **9**: 593
 13. Imperadore, P., Uckermann, O., Galli, R., Steiner, G., Kirsch, M., and **Fiorito, G.** (2018). Nerve regeneration in the cephalopod mollusc *Octopus vulgaris*: label-free multiphoton microscopy as a tool for investigation. *Journal of The Royal Society Interface*, **15**: 20170889.
 14. Shigeno, S., Andrews, P., Ponte, G., and **Fiorito, G.** (2018). Cephalopod brains: an overview of current knowledge to facilitate comparison with vertebrates. *Frontiers in Physiology*, **9**: 952.
 15. Imperadore, P., Shah, S.B., Makarenkova, H.P., and **Fiorito, G.** (2017). Nerve degeneration and regeneration in the cephalopod mollusc *Octopus vulgaris*: the case of the pallial nerve. *Scientific Reports*, **7**: 46564.
 16. Josef, N., Berenshtein, I., Rousseau, M., Scata, G., **Fiorito, G.**, and Shashar, N. (2017). Size matters: observed and modeled camouflage response of European Cuttlefish (*Sepia officinalis*) to different substrate patch sizes during movement. *Frontiers in Physiology*, **7**: 671.
 17. Tedesco, P., Gestal, C., Begić, K., Mladineo, I., Castellanos-Martínez, S., Catanese, G., Terlizzi, A., and **Fiorito, G.** (2017). Morphological and molecular characterization of *Aggregata* spp. Frenzel 1885 (Apicomplexa: Aggregatidae) in *Octopus vulgaris* Cuvier 1797 (Mollusca: Cephalopoda) from Central Mediterranean. *Protist*. **168**: 636-648.
 18. Villanueva, R., Perricone, V., and **Fiorito, G.** (2017). Cephalopods as predators: a short journey among behavioral flexibilities, adaptations, and feeding habits. *Frontiers in Physiology*, **8**: 598.
 19. De Luca, D., Catanese, G., Procaccini, G., and **Fiorito, G.** (2016). *Octopus vulgaris* (Cuvier, 1797) in the Mediterranean Sea: Genetic diversity and population structure. *PLoS ONE*, **11**: e0149496.
 20. Pugliese, C., Mazza, R., Andrews, P.L., Cerra, M.C., **Fiorito, G.**, and Gattuso, A. (2016). Effect of different formulations of magnesium chloride used as anesthetic agents on the performance of the isolated heart of *Octopus vulgaris*. *Frontiers in Physiology*, **7**: 610.
 21. Shaw, T.J., Osborne, M., Ponte, G., **Fiorito, G.** and Andrews, P.L.R. (2016). Mechanisms of wound closure following acute arm injury in *Octopus vulgaris*. *Zoological Letters*, **2**: 8.
 22. De Luca, D., Catanese, G., **Fiorito, G.** and Procaccini, G. (2015). A new set of pure microsatellite loci in the common octopus *Octopus vulgaris* Cuvier, 1797 for multiplex PCR assay and their cross-amplification in *O. maya* Voss & Solís Ramírez, 1966. *Conservation Genetics Resources*, **7**: 299-301.

23. Di Cristina, G., Andrews, P., Ponte, G., Galligioni, V., and **Fiorito, G.** (2015). The impact of Directive 2010/63/EU on cephalopod research. *Invertebrate Neuroscience*, **15**: 8.
24. **Fiorito, G.**, Affuso, A., Basil, J., Cole, A., de Girolamo, P., D'Angelo, L., Dickel, L., Gestal, C., Grasso, Kuba, M., Mark, F., Melillo, D., Osorio, D., Perkins, K., Ponte, G., Shashar, N., Smith, D., Smith, J., and Andrews, P.L.R. (2015). Guidelines for the Care and Welfare of Cephalopods in Research - A consensus based on an initiative by CephRes, FELASA and the Boyd Group. *Laboratory Animals*, **49**(2 Suppl): 1-90.
25. Josef, N., Berenshtein, I., **Fiorito, G.**, Sykes, A. V. and Shashar, N. (2015). Camouflage during movement in the European cuttlefish (*Sepia officinalis*). *Journal of Experimental Biology*, **218**: 3391-3398.
26. Zarrella, I., Ponte, G., Baldascino, E. and **Fiorito, G.** (2015). Learning and memory in *Octopus vulgaris*: a case of biological plasticity. *Current Opinion in Neurobiology*, **35**: 74-79.
27. Amodio, P., Andrews, P., Salemme, M., Ponte, G. and **Fiorito, G.** (2014). The Use of Artificial Crabs for Testing Predatory Behavior and Health in the Octopus. *ALTEX*, **31**: 494-499
28. De Luca, D., Catanese, G., Procaccini, G., and **Fiorito, G.** (2014). An integration of historical records and genetic data to the assessment of global distribution and population structure in *Octopus vulgaris*. *Frontiers in Ecology and Evolution*, **2**: 55.
29. **Fiorito, G.**, Affuso, A., Anderson, D., Basil, J., Bonnaud, L., Botta, G., Cole, A., D'Angelo, L., Girolamo, P., Dennison, N., Dickel, L., Cosmo, A., Cristo, C., Gestal, C., Fonseca, R., Grasso, F., Kristiansen, T., Kuba, M., Maffucci, F., Manciooco, A., Mark, F., Melillo, D., Osorio, D., Palumbo, A., Perkins, K., Ponte, G., Raspa, M., Shashar, N., Smith, J., Smith, D., Sykes, A., Villanueva, R., Tublitz, N., Zullo, L., and Andrews, P. (2014). Cephalopods in neuroscience: regulations, research and the 3Rs. *Invertebrate Neuroscience*, **14**: 13-36.
30. Josef, N., Mann, O., Sykes, A.V., **Fiorito, G.**, Reis, J., Maccusker, S., and Shashar, N. (2014). Depth perception: cuttlefish (*Sepia officinalis*) respond to visual texture density gradients. *Animal Cognition*, **17**: 1393-1400.
31. Locatello, L., **Fiorito, G.**, Finos, L., and Rasotto, M.B. (2013). Behavioural and immunological responses to an immune challenge in *Octopus vulgaris*. *Physiology & Behavior*, **122**: 93-99.
32. Josef, N., Amodio, P., **Fiorito, G.**, and Shashar, N. (2012). Camouflaging in a complex environment - octopuses use specific features of their surroundings for background matching. *PLoS ONE*, **7**: e37579.
33. Canali, E., Ponte, G., Belcari, P., Rocha, F., and **Fiorito, G.** (2011). Evaluating age in *Octopus vulgaris*: estimation, validation and seasonal differences. *Marine Ecology Progress Series*, **441**: 141-149.
34. Margheri, L., Ponte, G., Mazzolai, B., Laschi, C., and **Fiorito, G.** (2011). Non-invasive study of *Octopus vulgaris* arm morphology using ultrasound. *Journal of Experimental Biology*, **214**: 3727-3731.
35. Shomrat, T., Graindorge, N., Bellanger, C., **Fiorito, G.**, Loewenstein, Y., and Hochner, B. (2011). Alternative Sites of Synaptic Plasticity in Two Homologous "Fan-out Fan-in" Learning and Memory Networks. *Current Biology*, **21**: 1773-1782.
36. Tricarico, E., Borrelli, L., Gherardi, F., and **Fiorito, G.** (2011). I Know My Neighbour: Individual Recognition in *Octopus vulgaris*. *PLoS ONE*, **6**: e18710.
37. Hermosilla, C.A., Rocha, F., **Fiorito, G.**, González, Á.F., and Guerra, Á. (2010). Age validation in common octopus *Octopus vulgaris* using stylet increment analysis. *ICES Journal of Marine Science*, **67**: 1458-1463.
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Molecular Biology, **10**: 70.

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43. Hochner, B., Shomrat, T., and **Fiorito, G.** (2006). The octopus: a model for a comparative analysis of the evolution of learning and memory mechanisms. *The Biological Bulletin*, **210**: 308-317.
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49. Sumbre, G., Gutfreund, Y., **Fiorito, G.**, Flash, T., and Hochner, B. (2001). Control of octopus arm extension by a peripheral motor program. *Science*, **293**: 1845-1848.
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51. **Fiorito, G.**, and Gherardi, F. (1998). Monitoring near-entrance activity of burrow-dwelling invertebrates using an image analysis system. *Marine and Freshwater Behaviour and Physiology*, **31**: 93-104.
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54. Gutfreund, Y., Flash, T., **Fiorito, G.**, and Hochner, B. (1998). Patterns of arm muscle activation involved in octopus reaching movements. *Journal of Neuroscience*, **18**: 5976-5987.
55. Agnisola, C., Castaldo, P., and **Fiorito, G.** (1996). *Octopus vulgaris* (Mollusca, Cephalopoda) as a model in behavioral pharmacology: a test of handling effects. *Physiology & Behavior*, **59**: 729-733.
56. Gutfreund, Y., Flash, T., Yarom, Y., **Fiorito, G.**, Segev, I., and Hochner, B. (1996). Organization of octopus arm movements: a model system for studying the control of flexible arms. *Journal of Neuroscience*, **16**: 7297-7307.
57. **Fiorito, G.**, and Chichery, R. (1995). Lesions of the vertical lobe impair visual

discrimination learning by observation in *Octopus vulgaris*. *Neuroscience Letters*, **192**: 117-120.

58. **Fiorito, G.** (1993). Social learning in invertebrates. Response. *Science*, **259**: 1629.
59. **Fiorito, G.**, Scotto, P. (1992). Observational Learning in *Octopus vulgaris*. *Science*, **256**: 545-547.
60. **Fiorito, G.**, and Gherardi, F. (1990). Behavioural changes induced by ink in *Aplysia fasciata* (Mollusca, Gastropoda): evidence for a social signal role of inking. *Marine Behaviour & Physiology*, **17**: 129-135.
61. **Fiorito, G.**, von Planta, C., and Scotto, P. (1990). Problem solving ability of *Octopus vulgaris* Lamarck (Mollusca, Cephalopoda). *Behavioral and Neural Biology*, **53**: 217-230.
62. Bergamo, P., **Fiorito, G.**, and Miralto, A. (1988). An analysis of the agonistic behaviour of *Carcinus mediterraneus* (Czerniavsky) (Crustacea Decapoda): fighting and ritualization. *Monitore Zoologico Italiano-Italian Journal of Zoology*, **22**: 315-322.
63. **Fiorito, G.** (1986). Is there "pain" in invertebrates? *Behavioural Processes*, **12**: 383-388.

Other publications

see also **Google Scholar**

Conferences and Seminars

For a list of my contribution to conferences, workshops, and seminars see Google Scholar profile.

Mentoring

Tutor and Director of PhD Studies: 12 in total (2 in UK; 2 in Israel)

Currently supervising: 1 PhD candidate (Italy), 1 PhD candidate (KU Leuven, Belgium)
1 PhD candidate (U. Vienna, Austria)

first co-supervised PhD: 1993-1994; first co-supervised international PhD: 1999

Tutor for Master's dissertations (over 30 in total), various Italian universities;

Tutor on BSc courses (> 10) US students: Harvard University, Southampton City College and Hampshire College.

Coordinating institutional projects

FROM 2012 TO 2015

Coordinator

MODO project, *Model Organism*, POR Campania FSE 2007–2013
(to a value of €321,987.95)

Stazione Zoologica Anton Dohrn, Naples

From 2012 to 2015

Training Coordinator

BioForIU Project: Multidisciplinary infrastructure for the study and enhancement of marine and terrestrial biodiversity as part of the "Innovation Union" PON

(to a value of : €158,648.50)

Stazione Zoologica Anton Dohrn, Naples

CNR: analisi biologiche e comportamentali in *Octopus vulgaris* (23/10/98 -30/12/99)
(to a value of : €7,746.85; paid in Italian lire)

Fondazione Banco Napoli:

The *Octopus vulgaris*: experimental model to study premotor coordination and neural parallelism in comparison with the nerve structures of Human Primates

Developing experiment and maintenance guidelines regarding Cephalopod Molluscs for scientific purposes

FBN.1 (19/07/2002 - 31/12/2002) euro 23,998.71

FBN.2 (20/06/2003 - 19/06/2003) euro 25,000.00

FBN.4 (01/10/2006 - 31/12/2007) euro 25,000.00

MIUR Awards Projects (2011; 01/01/2013 - 31/12/2013)

to a value of €286,328.00

SZN Institutional Non-EU: Nociception, pain and suffering in octopuses (2017-2018)

to a value of €20,000.00

Other positions and
professional experience

from March 2020 to date

Member

Animal Welfare Body

Stazione Zoologica Anton Dohrn, Naples

from March 2014 to October 2019

Person Responsible of Animal Welfare

Stazione Zoologica Anton Dohrn, Naples

from March 2014 to October 2019

Chair

Animal Welfare Body

Stazione Zoologica Anton Dohrn, Naples

April 2011

President of the EuroCeph 2011 Organizing Committee

International Meeting on Cephalopod Biology

Cephalopod Biology Research in the 21st century

Vico Equense, Naples

June 2010

Educator 'Scuola Estiva di Alta Formazione in Filosofia ed Etologia Umana'. Culture Animali e Dimensione Ecologica - Università di Cassino

March 2010

Co-organizer Scuola FENS-IBROSFN - "Brain Evolution and its consequences for brain pathology".

Stazione Zoologica Anton Dohrn, Naples&IBRO

September 2009

Educator – Member of the Organising Committee "First Kemali-IBRO Mediterranean School of Neuroscience. The Synapse from Beach to Bedside: Synaptic Transmission, Plasticity, Synaptopathies"

Stazione Zoologica Anton Dohrn, Naples&IBRO

July 1998

President of the Organizing Committee of the “International conference on social learning and cultural transmission: from invertebrates to great apes and humans. Towards a biological synthesis”

Naples

from 1994 to 1996

Supervisor

Implementation and creations of the network system at the SZN

implementation of the first SZN Internet network

Stazione Zoologica Anton Dohrn, Naples

1994

Co-organizer

CIAC 1994 conference

The behaviour and Natural History of Cephalopods

Vico Equense, Naples; 5-11 June 2014

Patents obtained in Italy or abroad

----- none -----

Scientometric indicators of scientific productivity

Number of peer-reviewed papers:	76
Number of ISI papers with Impact Factor:	60
total Impact Factor	
based on IF values of published years	286.504
based on IF values JCR - 2018	361.578
H index¹	26
Number of peer-reviewed papers (last 5 years)	32
Number of papers with at least 10 citations (last 5 years)¹	10
Total Number of citations (WoS)²	1587
Number of citations (Google Scholar)³	2615
Number of citations (Google Scholar)⁴	2853
Max number of citations per paper (WoS)	180
Max number of citations per paper (Google Scholar)	443
Number of papers with at least 50 citations (WoS)	11
Number of papers with at least 50 citations (Google Scholar)	15

Values from WoS-ISI and/or Google Scholar

Last update, November 2019

¹ **Google Scholar** - last visited November 2019

² **WoS-ISI** – last visited novembre 2019 [1349 total citations, excluding self-citations]

³ **Google Scholar** - last visited November 2019

⁴ **Google Scholar** - last visited November 2019

Personal data

I authorize the processing of my personal data in accordance with Legislative Decree n. 196 of 30 June 2003, "Code for the protection of personal data" and the relevant articles of the GDPR (EU) 2016/679 "European Data Protection Regulation".

I declare under my responsibility and in accordance with Presidential Decree 445/00 that the information contained in this curriculum vitae is true.

Graziano Fiorito


Napoli, 10 June 2020