

Curriculum vitae Walter Marcelo FARINA

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I.- PERSONAL DATA

Name: FARINA, Walter Marcelo
Place and birthday: Buenos Aires, 27.12.1962
Civil state: married Children: two

II.- CURRENT POSITIONS

2012- *Full Professor* (regular). Subject: *Insect Physiology and Behavior*. Department of Biodiversity and Experimental Biology. School of Exact and Natural Sciences, University of Buenos Aires, Argentina.
2018- *Superior Investigator* of the National Council of Research and Technology (CONICET, Argentina).

III.- EDUCATION STAGES:

1989 Licenciado in Biological Sciences, School of Exact and Natural Sciences, University of Buenos Aires, Argentina.
1993 Ph. D. in Biological Sciences. Communication channels associated to the nectar food source profitability in the honeybee *Apis mellifera*. Director: J. A. Núñez. School of Exact and Natural Sciences, University of Buenos Aires, Argentina. Specialization Field: Behavioral Physiology, Insect Behavior.

IV. FELLOWSHIPS AND SCIENTIFIC STAYS

- *Visitant researcher*: Fukuoka University, Fukuoka, Japan (2022). Universidad Autónoma de Barcelona, Barcelona, España (2019). Fukuoka University, Fukuoka, Japan (2018). Universidad Nacional de la República, Montevideo, Uruguay (2019, 2017, 2013, 2012, 2010). Instituto de Neurobiología, UNAM, Querétaro, Mexico (2016, 2013). Empresa Brasileira de Pesquisa Agropecuária (Embrapa), Petrolina, Brasil (2015). Universidad Federal de Pará, Belem, Brasil (2013). Centro de Ciencias Agrarias, Universidad Federal de Santa Catarina (2012). Institut für Biologie—Neurobiologie, Freie Universität Berlin Germany (2010, 2001). Centre de Recherches sur la Cognition Animale, CNRS - Université Paul Sabatier - Toulouse III, France (2008, 2006, 2002). Departamento de Genética, USP, Ribeirão Preto, São Paulo, Brazil (2006, 2005, 2000). Institut für Biowissenschaften, Universität Würzburg, Germany (1998).
- *Japan Society for Promotion of Sciences Fellowship* (2022)
- *AUGM Program Fellowship* (2019, 2017, 2012)
- *PROMAI Fellowship* (2016)
- *Japan Society for Promotion of Sciences Fellowship* (2018)
- *René Hugo Thalmann Fellowship 1998*, University of Buenos Aires.
- *Postdoctoral Fellowship*. University of Buenos Aires, Argentina (1994-1995)
- *D.A.A.D. Fellowship*. Lehrstuhl für Biokybernetik. Universität Tübingen, Germany (1991-1993)
- *Doctoral Fellowship*. CONICET, Argentina (1989-1991).

V.- AWARDS

- *Diploma of Merit from the Konex Foundation 2023* in the discipline "Biotechnology" to the 100 most outstanding personalities of Argentine Science and Technology of the decade (2013-2022)
- *Special Mention - UBATEC Award for Innovation and Applied Research 2015*

- *Guggenheim Fellowship 2009.*
- *Best Doctoral Thesis in Biological Sciences 1993-1997.* Exacts and Natural Science Foundation, Buenos Aires.

VI. PUBLICATIONS (*major publications in the opinion of the author. Total peer-reviewed articles: 108*)

1. *Farina WM, Arenas A, Diaz PC, Susic Martin C, Estravis Barcala MC (2020). Learning of a mimic odor within honey bee hives improves pollination service efficiency in a commercial crop. *Current Biology*, 30, 1-7. <https://doi.org/10.1016/j.cub.2020.08.018> (commented in *Nature Food, US*: Train the bees for pollination, 14/10/2020; *New York Times, US*: Aromatherapy in the apiary is what the bees need., 21/9/2020; *The Times, UK*: Bees can be trained to sniff out flowers, 18/9/2020; *New Scientist, UK*: Training bees to prefer certain flower scents boosts seed production, 17/9/20; *J. Exp. Biol., Outside JEB, UK*: Synthetic sunflower scent trains bees for better pollination, 2021, 224, 3; *2 Million Blossoms, US*: How the bees and a scientist saved each other, Spring 2021, 61-65)
2. *Balbuena MS, Tison L, Hahn M-L, Greggers U, Menzel R, Farina WM (2015). Effects of sub-lethal doses of glyphosate on honeybee navigation. *Journal of Experimental Biology*, 218:2799-2805. doi:10.1242/jeb.117291 (commented in GMWatch, US, <http://gmwatch.org/news/latest-news/16336-sub-lethal-doses-of-glyphosate-impair-honeybee-navigation>)
3. Grüter C, Farina WM (2009). The honeybee waggle dance: can we follow the steps? *Trends in Ecology and Evolution* 25:242-247 (commented in *New Scientist, UK*. Título del artículo: *Rethinking the bee's waggle dance*, 18/9/2009)
4. *Farina WM, Grüter C, Díaz P (2005). Social learning of floral odours inside the honeybee hive. *Proceeding of the Royal Society B*, 273:1923-1928
5. *Herbert L, Vázquez D, Arenas A, Farina WM (2014). Effects of field-realistic doses of glyphosate on honeybee appetitive behavior. *Journal of Experimental Biology*, 217:3457-3464. doi:10.1242/jeb.109520 (commented by Noticias Exactas_FCEN-UBA, INFOBAE, AR. Título del artículo: *Abejas confundidas: los efectos negativos de los herbicidas*, 5/9/2014)

*Corresponding/Senior author

Contributions in Scientific Meetings (total: 181): Plenary lectures in Scientific Meetings (total: 20): 38th Annual Ethology Meeting of the Brazilian Ethological Society and III Reunión de Biología del Comportamiento del Cono Sur (virtual meeting 2021) / 41° Congreso Argentino de Horticultura (virtual meeting / 1ra. Reunión en Biología de la Polinización de Argentina (PolAr 2019, Buenos Aires) / International Union for the Study of Social Insects (IUSI 2018, Guarujá) / XIII Latin-American Congress of Apiculture, Montevideo, Uruguay 2018 / First International Symposium on Insecticide Toxicology, Guangzhou, China 2014 / II Latin-American Congress of Chemical Ecology, Cordoba, Argentina 2012 / X Bee Meeting, Ribeirao Preto, Brazil 2012 / X Ibero-American Congress of Apiculture, Natal, Brazil 2010. *Oral contributions in Workshops (5) / Oral contributions in Symposia (30) / Abstracts published in Proceedings (14) / Full articles published in Proceedings (2) / Abstracts published in Scientific Journals (4) / Other Contributions in Scientific Meetings: posters and oral presentations (125)*

Conferences by invitation at Universities and Research Institutes (total: 38): Arthropoda: Webinar series (virtual conference, 2021) / CREA, Universidad Autónoma de Barcelona, España, 2019 / Facultad de Química, Universidad de la República, Montevideo, Uruguay, 2019 / Hyogo University, Himeji, Japan, 2018 / Kyoto University, Kyoto, Japan, 2018 / Tamagawa University, Tokyo, Japan, 2018 / Okinawa Institute of Science and Technology, Okinawa, Japan, 2018 / Fukuoka University, Fukuoka, Japan, 2018 / Facultad de Química, Universidad de la República, Montevideo, Uruguay, 2017 / Instituto de Neurobiología, Universidad Nacional Autónoma de México, Campus UNAM-Juriquilla, Querétaro, México, 2016 / Empresa Brasileira de Pesquisa Agropecuária (Embrapa), sede Petrolina, Pernambuco, Brasil, 2015 / Instituto de Investigaciones en Biociencias Agrícolas y ambientales (INBA-CONICET. Facultad de Agronomía, Universidad de Buenos Aires. Mayo 2013 / Centro de Ciencias Agronómicas, Universidade Federal de Santa Catarina, Florianopolis, Brasil, 2012 / Instituto de Investigación Agropecuaria, Colonia de Sacramento, Uruguay, Octubre 2010 / Instituto Leloir, Buenos Aires, 2009 / Instituto de Investigaciones Físicoquímicas Teóricas y Aplicadas, UNLP, La Plata, Prov. Buenos Aires, 2008 / Laboratoire d'Ethologie et Cognition Animale Université Paul Sabatier - Toulouse III. Toulouse, Francia, 2006 / Departamento de Biología, Universidad de Sao Paulo-FFCLR, Ribeirao Preto, Brasil, 2005

Contributions in Innovation Meetings (4)

Popular science articles (9)

VII. PATENTS

- Formulation for promoting targeted pollination of kiwifruit crops in honey bees. Inventors: Farina WM / Estravis C / Palottini F. United States Patent and Trademark Office. P5058US00 - Solicitud de patente en Estados Unidos n° US 63/240,476
- Formulation for promoting targeted pollination of blueberry crops in honey bees. Inventors: Farina WM / Estravis C / Palottini F. United States Patent and Trademark Office. P5059US00 - Solicitud de patente en Estados Unidos n° US 63/240,486
- Formulation for promoting targeted pollination of almond tree crops in honey bees. Inventors: Farina WM / Estravis C / Palottini F. PCT: 26/7/2018. PCT/IB2018/055549# // IP Australia. Application No.: 531508AU //United States Patent and Trademark Office. Application No.: 16634041 // China National Intellectual Property Administration. Application No.: 2018800504739 // Register of European Patents: EP3657957
- Formulation for promoting targeted pollination of pear tree crops in honey bees. Inventors: Farina WM / Díaz PC. PCT: 26/7/2018. PCT/IB2018/055550# // United States Patent and Trademark Office. Application No.: 16634077 // China National Intellectual Property Administration. Patent P4358CN00 Fecha de publicación: 9/3/2022 // Register of European Patents: EP3657945 // Instituto Nacional de Propiedad Intelectual: 26/7/2017. Acta: P 20170102102. Estado actual: solicitud de patente.
- Una formulación que promueve la polinización dirigida de abejas melíferas hacia cultivos de girasol. Inventores: Farina WM / Díaz PC / Arenas A. Patente 20110102442. Fecha de publicación en el Instituto Nacional de Propiedad Intelectual: 29/12/2017. Fecha de vencimiento: 07/07/2031#
- Una formulación que promueve la polinización dirigida de abejas melíferas hacia cultivos de manzano. Inventores: Farina WM / Díaz PC / Arenas A. Patente 20110102441. Fecha de publicación en el Instituto Nacional de Propiedad Intelectual: 30/08/2019. Fecha de vencimiento: 07/07/2031
- Formulado que promueve la polinización dirigida de abejas melíferas hacia cultivos de almendro. Inventores: Farina WM / Estravis C / Palottini F. Patente AR109159B1. Fecha de publicación en el Instituto Nacional de Propiedad Intelectual: 31/08/2022. Fecha de vencimiento: 26/07/203730/08/2019. Fecha de vencimiento: 07/07/2031 // Patente otorgada Nro. 202000193 (Fases Nacionales Chile), Fecha de concesión: 17/06/2022. Fecha de vencimiento: 25/07/2038
- Formulation for promoting targeted pollination of almond tree crops in honey bees. Inventores: Farina WM / Estravis C / Palottini F.. Patente otorgada Nro. US 11,457,650 B2 (Fases Nacionales USA), Fecha de concesión: 06/07/2022. Fecha de vencimiento: 21/09/2039.
- Formulación que promueve la polinización dirigida de cultivos de perales por abejas melíferas. Inventores: Farina WM / Diaz PC. Patente otorgada Nro. 202000194 (Fases Nacionales Chile). Titulares: CONICET, UBA, Walter M. Farina. Fecha de concesión: 17/06/2022. Fecha de vencimiento: 25/07/2038.#

A Specific Technology License Agreement was signed between the Faculty of Exact and Natural Sciences-University of Buenos Aires (FCEN-UBA), the National Council for Scientific and Technical Research (CONICET) and ToBEE S.A. that frames this Intellectual Property. Title of the agreement: Formulations that promote pollination by bees of various crops (Res. CD 3022/18)

* First license agreement for technology transfer of the FCEN-UBA since its foundation in 1891.

VIII. HUMAN RESOURCE DIRECTION

Ph. D Thesis direction:

- *Completed (17):* Alejandro Wainselboim / Patricia Fernández / Rodrigo de Marco / Christoph Grüter / Andrés Arenas / Sofía Mc Cabe / Vanesa Fernández / María Sol Balbuena / Paula Díaz / Gabriela Ramírez / Cinthia Susic Martin / Gonzalo Corti Bielsa / Carolina Mengoni Goñalons / Juan Pedro Grosso / Diego Vázquez Vancevic / Cecilia Estravis Barcala / Ivana Macri // *In course (3):* Joaquín Moja / Denise Nery / Facundo Verellen

Graduate Thesis Direction

- *Completed (14):* Andrea Tezze / Alejandro Wainselboim / Patricia Fernández / Guillermo Cogorno / Mariana Gil / Nicolás Pérez / Joaquín Goyret / Paula Díaz / Gabriela Ramírez / Lucila Herbert / Diego Vázquez Vancevic / Mariel Moaura / Ignacio Marchi / Facundo Verellen// *In course (2):* Camila Saldana / Melisa Gutierrez

Fellow direction (current)

- Joaquín Moja (INTA-CONICET) / Ivana Macri (INTA-CONICET) / Denise Nery (ANPCYT) / Facundo Verellen (ANPCYT)

Researcher direction (current)

F. Palottini (Assistant Researcher, IFIBYNE-CONICET, Argentina) / MS Balbuena (Assistant Researcher, IFIBYNE-CONICET, Argentina) / JM Latorre Estivalis (Assistant Researcher, IFIBYNE-CONICET, Argentina)

Alumni

- D. Vázquez (Postdoctoral Fellow (UDELAR, Uruguay) / F. Palottini. (Assistant Researcher, IFIBYNE-CONICET, Buenos Aires) / M. Sol Balbuena (Assistant Researcher, CONICET, IFIBYNE, Buenos Aires) / A. Arenas (Adjunct Researcher, CONICET, IFIBYNE, Buenos Aires) / S. Mc Cabe (Postdoctoral Fellow, Faculty of Medicine, University of Buenos Aires) / C. Grüter (Assistant Professor, University of Mainz, Germany) / A. Martínez (Assistant Researcher, CONICET, INTA-Bariloche) / R. De Marco (Max-Planck Postdoctoral Fellow, Heidelberg) / P. Fernández (Assistant Researcher, CONICET, INTA-Delta) / A. Wainelboim (Adjunct Researcher, INCIHUSA-CONICET, Mendoza)

IX. RESEARCH and R&D GRANTS (only as Director)

Current research grants:

2021-2024 Cognitive ecology in native and introduced social bees: an integrative approach in agronomical impact pollinators. (ANPCyT, PICT 2019 2438). From: 18/6/2021
2018-2021 Honeybee cognitive ecology (UBACYT 2018 20020170100078BA). From: 1/1/2018
2016-2021 Ecology and cognition of the honeybee *Apis mellifera*: basic and applied studies (CONICET, PIP 112-201501-00633). From: 1/5/2016

Research & Development grants:

2017 SPU UBA VTPI 2017 (Secretary of University Policies - Argentina). Grant to support the intellectual protecting processes of two national patent solicitudes in PCT system (almond formulation: P 20170102101; pear formulation: P 20170102102)
2013-2018 ToBEE, Precision Beekeeping (FONARSEC, EMPRETECNO 6, EBT 130). Grant aim: to promote the creation of Technology-based company proposing a rapid arrival in global markets with products capable of naturally stimulating the specific pollination of target crops.

Previous research grants:

PIP 2012 112-200801-00150; PIP 2009; PIP 1999; PIP 2000-02049.
PICT 2016 2084; PICT 2013 1060; PICT 2010 0425; PICT 2006 1155; PICT 2002 12310; PICT 1998 03103
UBACYT: 20020130100185BA, 20020100100470; X077; X036; JX53
CONICET: PIP 112-200801-00150; PIP 99; PIP 2000-02049; PEI (1997)
Fundación Antorchas, Research grant (2003, 2004)

Previous cooperative scientific programs:

2013-2014 CONICET/DFG (with Institut für Neurobiologie, Freie-Universität Berlin).
2005-2006 CONICET/CNRS (with Toulouse University, France; Res. N° 2311).
2004-2006 SECyT-CAPES (with University of Sao Paulo-Ribeirao Preto; BR/PA03-BI/031).
2002-2004 SECyT-ECOS (with Toulouse University, France; ECOS A01B01).
2002-2003 ANPCyT-DAAD (with Freie-Universität Berlin PROALAR 303).
1999 Fundación Antorchas-DAAD (with Würzburg Universität).

X. ACADEMIC ACTIVITIES

Academic positions

2014- 2018 Faculty member of the Board of the School of Exacts and Natural Sciences, UBA
2012-2014 Deputy Director of the Department of Biodiversity and Experimental Biology, Faculty of Exacts and Natural Sciences, University of Buenos Aires
2010- 2012 Board of Directors of the Institute of Physiology, Molecular Biology and Neurosciences (IFBYNE, CONICET)
2006- 2013 Director of the Docent area Biology and Animal Systematic (Experimental Biology section), Department of Biodiversity and Experimental Biology, School of Exacts and Natural Sciences, UBA
2010-2012 Board of the Departmental of Biodiversity and Experimental Biology, School of Exacts and Natural Sciences, UBA

Evaluator Committees

Assessor Committee in Biology (CONICET, 2012-2013) / Doctoral Sub-committee (FCEN-UBA, 2012) / Postgraduate and Postdoctoral Fellowships (CONICET, 2011-2012) / CTA 4, University of Buenos Aires (Scientific grants and fellowships, 2006-2010) / Selection Committee for DAAD and ALEARG Fellowships (DAAD-MECT, 2005) / Pre-selection Committee for DAAD Fellowships in Argentina (2002-2004) / CTA 2, University of Buenos Aires (Scientific grants and fellowships, 2002-2003)

Scientific Committees

XII Congress of International Society of Neuroethology (2016) / II Congreso Argentino de Biología del Comportamiento (2015) / XI Congreso Argentino de Entomología (2015) / Congreso Latinoamericano de Apicultura FILAPI (2014) / I Congreso Argentino de Biología del Comportamiento (2013) / VIII Congreso Argentino de Entomología (2012) / 42nd International Congress of Apiculture (2011) / II Congreso Argentino de Apicultura (2008)

Organization of Scientific Meetings

Symposium Organizer; XII Congress of International Society of Neuroethology (2016) / Session Bee biology; Congreso Latinoamericano de Apicultura FILAPI (2014) / Symposium Organizer. 42nd International Congress of Apiculture (2011) / Symposium Organizer. V Congreso Argentino de Entomología (2002) / Workshop of the DFBMC, FCEN-UBA (2004) / Symposium Organizer. 8th International Conference on Tropical Bees (2004) / Workshop of the DBBE, FCEN-UBA (2004)

Reviewing activities

Teacher contest (12 times) / Graduate Thesis (15 times) / PhD Thesis (12 times) / Peer-reviewed articles (more than 50 times) / Scientific Agencies (ANPCYT, CONICET, UBACYT, UNLP, Argentina; Instituto C. Estable; Uruguay; CYTED, Spain)

XI. LANGUAGES

Spanish: Mother language / English and Portuguese: speaks, reads and writes / German: speaks and reads

XII. QUANTITATIVE INDICATORS

Total citations (ISI): 2709 / H-index (ISI): 29 / Total citations (Google Scholar): 4265 / h-index (Google Scholar): 37 / i10-index (Google Scholar): 86