

Rachele Nieri

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PERSONAL PROFILE

Research statement

My research activity is addressed to the study of innovative pest control strategies based on the manipulation of insect behavior. In particular, I investigate the ethology of insects with a specific focus on biotremology, a recently recognized scientific field that studies animal vibrational communication.

I worked on several pest and beneficial insect species (phytophagous and predatory Hemiptera, Diptera, Hymenoptera). My studies explored both basic and applied biological questions with the aim of integrating the knowledge and developing novel management strategies for sustainable agriculture.

I have extensive experience in vibrational communication studies that I have conducted since the beginning of my PhD in 2012. I carried out laboratory and open-field studies taking part in all the steps of the development of a new technology, from conception to implementation of a prototype.

My technical skills include, but are not limited, to the following techniques: behavioral trials, recording of surface-borne vibrations (laser vibrometer; accelerometer; piezo-electric), playback experiments (electro-dynamic exciters; LRA; piezo-stack), and bioacoustics analysis.

My internationally-based research is inferable by the collaborations in my publications and projects, as well as by the periods I spent working abroad in internationally recognized research centers (USDA, Oregon State University, and University of Missouri, USA).

Education

2017 **PhD in Ethology and Ecology**, University of Florence (Italy)

- thesis title “Insect vibrational communication: description, decoding, and manipulation”.
- advisors: Prof. Rita Cervo and Dr Valerio Mazzoni.

2012 **Master degree in Biology** (curriculum in Behavioral Biology), University of Florence (Italy), Honors summa cum laude.

- thesis title “Geographical patterns of integration of a social parasite into a host colony”;
- advisors: Prof Rita Cervo and Dr Alessandro Cini.

2010 **Bachelor degree in Biological Sciences**, University of Florence (Italy), Honors summa cum laude.

- thesis title “Local adaptation in the social parasite wasp *Polistes sulcifer* and in its host”;
- advisors: Prof Rita Cervo and Dr Alessandro Cini.

Professional memberships

2016 - present Italian section of the International Union for the Study of Social Insects (AISASP);

2018 - present Entomological Society of America (ESA).

WORK EXPERIENCE

Scientific career

- 2022-present **Post-doc Researcher (RTDa)** at Department of Mathematics and Center for Agriculture, Food, Environment, Università di Trento.
- 2021 **Research fellowship (Post-doc)** (10 months) at Department of Civil, Environmental, and Mechanical Engineering, Università di Trento, supervisor Prof. Nicola Pugno.
- Project title: “VIBROBUG: Vibrational mating disruption of grapevine pests”.
- 2018-2020 **Postdoctoral Research Associate** (2 years) at North Willamette Research and Extension Center, Department of Horticulture, Oregon State University, supervisor Prof. Nik Wiman.
- Topic: Behavioral manipulation of insect pests using chemical and vibrational stimuli (target species: *Drosophila suzukii*, *Halyomorpha halis*, *Stictocephala basalis*).
- 2017-2018 **Research fellowship (Post-doc)** (9 months) at Center for Agriculture, Food and Environment (C3A), Università di Trento, supervisor Prof. Gianfranco Anfora.
- Project title: “Application of the vibrational mating disruption in the open field”.

Additional training

- 2021 **BK Connect software training** (16 hours), HBK Academy online, instructor Ryan Salmon.
- Topic: Use of sound and vibration analysis software.
- 2019 **Visiting scientist** (1 month) at University of Missouri, Division of Biological Sciences, supervisor Prof Rex Cocroft.
- Topic: Comparative study of several methodologies to record and playback vibrational signals (i.e. laser vibrometer, accelerometer, LRA, piezoelectric discs, piezo stack, modified speaker).
- 2014 **Visiting scientist** (6 months) at United States Department of Agriculture (USDA), San Joaquin Valley Agricultural Sciences Center (Parlier, California, USA), supervisor Dr Rodrigo Krugner.
- Topic: Description of the mating behavior of the glassy-winged sharpshooter, *Homalodisca vitripennis*, vector of *Xylella fastidiosa*.
- 2013 **FameLab Masterclass** (3 days), organized by FameLab Italia, Perugia.
- Topic: How to effectively communicate scientific knowledge to the general public.

SCIENTIFIC PUBLICATIONS

Author level metrics

Updated October 13th, 2023

	Google Scholar	Web of Science	Scopus
Sum of the times cited:	425	267	264
h-index:	11	10	10
i10-index:	13	10	10

List of peer-reviewed research articles

The asterisk indicates the corresponding author.

1. Thiery D.*, Mazzoni V., **Nieri R.** (2023) Disrupting pest reproduction techniques can replace pesticides in vineyards. A review. *Agronomy for Sustainable Development*, 43:69. DOI: 10.1007/s13593-023-00915-7.
2. Peccerillo C., Mainardi C. E., **Nieri, R.**, Fouani J. M., Cemmi A., Cristofaro M., ... & Mazzoni V. (2023). The Effect of the Sterile Insect Technique on Vibrational Communication: The Case of *Bagrada hilaris* (Hemiptera: Pentatomidae). *Insects*, 14(4), 353.
3. Avosani S., **Nieri R.**, Mazzoni V., Anfora G., Hamouche Z., Zippari C., ... & Cornara D. (2023). Intruding into a conversation: how behavioral manipulation could support management of *Xylella fastidiosa* and its insect vectors. *Journal of Pest Science*, 1-17.
4. Zapponi, L.*, **Nieri, R.**, Zaffaroni-Caorsi, V., Pugno, N. M., & Mazzoni, V. (2023). Vibrational calling signals improve the efficacy of pheromone traps to capture the brown marmorated stink bug. *Journal of Pest Science*, 1-11. DOI: 10.1007/s10340-022-01533-0.
5. Caorsi, V.Z.*, **Nieri, R.**, Pugno, N.M., Mazzoni, V. (2022). Effect of vibrational mating disruption on flight activity and oviposition to control the grapevine pest, *Scaphoideus titanus*. *Arthropod Structure & Development*, 69, 101173. DOI: 10.1016/j.asd.2022.101173.
6. **Nieri, R.**, Anfora, G., Mazzoni, V., Rossi Stacconi, M.V.* (2022). Semiochemicals, semiophysicals and their integration for the development of innovative multi-modal systems for agricultural pests' monitoring and control. *Entomologia Generalis*, DOI: 10.1127/entomologia/2021/1236.
7. Tait G., Mermer S., Stockton D., et al. (2021) *Drosophila suzukii* (Diptera: Drosophilidae): A decade of research towards a sustainable integrated pest management program. *Journal of Economic Entomology*, 114(5): 1950-1974.
8. Masoni, A.*, Frizzi, F., **Nieri, R.**, Casacci, L.P., Mazzoni, V., Turillazzi, S., Santini G. (2021). Ants modulate stridulatory signals depending on the behavioural context. *Scientific Reports*, 11(1): 1-12.
9. Rossi Stacconi, M.V.*, Tait, G., Rendon, D., Grassi, A., Boyer, G., **Nieri, R.**, Walton, V.M. (2020) Gumming up the works: Field tests of a new food-grade gum as behavioral disruptor for *Drosophila suzukii* (Diptera: Drosophilidae). *Journal of Economic Entomology*, 113(4): 1872–1880.

10. Tait, G.*, Park, K., **Nieri, R.**, Crava, M.C., Mermer, S., Clappa, E., Boyer, G., Dalton, D.T., Carlin, S., Brewer, L., Walton, V.M., Anfora, G., Rossi Stacconi, M.V. (2020). Reproductive site selection: evidence of an oviposition cue in a highly adaptive dipteran, *Drosophila suzukii* Matsumura (Diptera: Drosophilidae). *Environmental Entomology*, 49(2): 355-363.
11. **Nieri, R.*** & Mazzoni, V. (2019). Vibrational mating disruption of *Empoasca vitis* by natural or artificial disturbance noises. *Pest Management Science*, 75: 1065–1073.
12. Pepiciello, I., Cini, A.*, **Nieri, R.**, Mazzoni, V., Cervo, R. (2018). Adult-larvae vibrational communication in paper wasps: the role of abdominal wagging in *Polistes dominula*. *Journal of Experimental Biology*, 221(20), jeb186247. DOI: 10.1242/jeb.186247.
13. **Nieri, R.*** & Mazzoni, V. (2018). The reproductive strategy and the vibrational duet of the leafhopper *Empoasca vitis* Göthe. *Insect Science*, 25(5), 869-882.
14. Mazzoni, V., Gordon, S., **Nieri, R.***, & Krugner, R. (2017). Design of a candidate vibrational signal for mating disruption against the glassy-winged sharpshooter, *Homalodisca vitripennis*. *Pest Management Science*, 73(11), 2328–2333.
15. **Nieri, R.***, Mazzoni, V., Gordon, S., & Krugner, R. (2017). Mating behavior and vibrational mimicry in the glassy-winged sharpshooter, *Homalodisca vitripennis*. *Journal of Pest Science*, 90(3), 887-899.
16. Gemeno, C.*, Baldo, G., **Nieri, R.**, Valls, J., Alomar, O., & Mazzoni, V. (2015). Substrate-Borne Vibrational Signals in Mating Communication of *Macrolophus* Bugs. *Journal of Insect Behavior*, 28(4), 482-498.
17. Cini, A.*, **Nieri, R.**, Dapporto, L., Monnin, T., & Cervo, R. (2014). Almost royal: incomplete suppression of host worker ovarian development by a social parasite wasp. *Behavioral ecology and sociobiology*, 68(3), 467-475.

Book chapters

The asterisk indicates the corresponding author.

18. **Nieri R.***, Cini A., Rossi Stacconi M. V., Pepiciello I., Mazzoni V., Cervo R. (2022) Biotremology of social wasps: the next step to understand wasps' social life. In *Biotremology: Physiology, Ecology, and Evolution* (eds: Hill P., Mazzoni V., Stritih Peljhan N., Virant-Doberlet M., Wessel A.), Springer. DOI: 10.1007/978-3-030-97419-0_18.
19. **Nieri R.***, Michael S. C. J., Pinto C. F., Urquizo O. N. H., Appel H. M., Cocroft R. B. (2022) Inexpensive methods for detecting and reproducing substrate-borne vibrations: advantages and limitations. In *Biotremology: Physiology, Ecology, and Evolution* (eds: Hill P., Mazzoni V., Stritih Peljhan N., Virant-Doberlet M., Wessel A.), Springer. DOI: 10.1007/978-3-030-97419-0_8.

20. Mazzoni V., **Nieri R.** (2022) Gli strumenti della bioacustica e della biotremologia, in ch. 6 La comunicazione degli animali. In *Etologia. Lo studio del comportamento animale*. (eds: Bogliani G., Carere C., Cervo R., Grasso D.A., Luschi P.), UTET Università, ISBN 9788860086358.
21. Strauß J., Stritih-Peljhan N., **Nieri R.**, Virant-Doberlet M., Mazzoni V.* (2021) Communication by substrate-borne mechanical waves in insects: from basic to applied biotremology. In *Advances in Insect Physiology, Vol. 61* (ed: Jurenka R.), Elsevier. DOI: 10.1016/bs.aiip.2021.08.002.
22. Mazzoni V.*, **Nieri R.**, Anfora, G., Eriksson A., Lucchi A. (2019) Mating disruption by vibrational signals – State of the field and perspectives. In *Biotremology: Studying Vibrational Behavior* (eds: Hill P., Narins P., Mazzoni V., Virant-Doberlet M., Wessel A., Lakes-Harlan R.), Springer, pp. 331-354.

SCIENTIFIC CONFERENCES

Invited talks/chairmen/convener

- 2022 **Invited speaker, R. Nieri.** Talk: “A case study of vibrational pest control for fruit growers (*Halyomorpha halis*)”, BIOFRUITNET, 2nd online seminar.
- 2021 **Invited speaker, R. Nieri.** Talk: “Comunicazione vibrazionale: cosa è e come può esserci utile”, Incontri di etologia, ecologia, evoluzione, online.
- 2020 **Symposium organizer,** Behavior manipulation. Entomological Society of America Pacific Branch meeting. Spokane (Washington, USA).
- 2019 **Symposium organizer,** 8th Annual Postdoc Research Symposium (Oregon, USA).
- 2015 **Invited speaker, R. Nieri and V. Mazzoni.** Talk: “Il ruolo dei segnali vibrazionali nel comportamento riproduttivo di *Empoasca vitis* (Göthe)”, 26th SIE Congress, Parma, Italy.

International congress presentations

Only talks given as primary presenter are listed.

- 2023 **Nieri R.,** Berardo A., Akassou I., Zaffaroni-Caorsi V., Anfora G., Pugno N.M. & Mazzoni V. “Vibrational mating disruption against insect pests: five years of experimentation in the vineyard”, 29th International Congress on Sound and Vibration, Prague, Czech Republic.
- 2022 **R. Nieri,** V. Zaffaroni Caorsi, N. Pugno, V. Mazzoni. Talk: “Not just mating: The unexpected side-effects of the disturbance noise on the flight activity and oviposition behavior of leafhoppers”, 3rd International Conference on Biotremology, Piran, Slovenia
- R. Nieri,** A. berardo, V. Zaffaroni Caorsi, N. Pugno, G. Anfora, V. Veronelli, V. Mazzoni. Talk: “Vibrational Mating Disruption: potentiality and actuality of applied biotremology in the vineyard”, Plant BioProTech Symposium, 28-30 June 2022, Reims, France.
- 2021 **R. Nieri,** A. Cini, M.V. Rossi Stacconi, I. Pepiciello, N.M. Pugno, V. Mazzoni, R. Cervo. Talk: “Biotremology of social wasps: A neglected communication channel”, EU-IUSSI Symposium Diversity, plasticity and evolution of communication in insect societies, Online.
- R. Nieri,** G. Anfora, V. Mazzoni, MV Rossi Stacconi. Talk: “Semiochemicals, semiophysicals and their integration for the development of innovative multi-modal systems for agricultural pests’ monitoring and control.”, Ecoacoustics Congress, Online.
- 2019 **R. Nieri,** HC Cromwell, V. Walton, MV Rossi Stacconi and N. Wiman. Talk: “Behavioral manipulation of *Drosophila suzukii* exposed to different oviposition substrates.”, ESA Pacific Branch Meeting, San Diego, California (USA).
- R. Nieri,** DT Dalton, JZ Buser, S. Nizich, N. Wiman and V. Walton. Talk: “The vibrational mating duet and the potential for a vibrational pest management strategy of treehopper pests.”, ESA Pacific Branch Meeting, San Diego, California (USA).
- 2018 **R. Nieri,** MV. Rossi Stacconi, N. Wiman and V. Walton. Talk: “Behavioral manipulation of *Drosophila suzukii*: immediate and longterm effects of different oviposition substrates exposure”, ESA, ESC and ESBC Joint Annual Meeting, Vancouver (Canada),

- R. Nieri**, I. Pepiciello, A Cini, V Mazzoni and R Cervo. Talk: “Adult-larvae vibrational communication in paper wasps: the role of abdominal wagging in *Polistes dominula*” 2nd International Symposium on Biotremology, Riva del Garda (Italy).
- 2017 **R. Nieri** and V. Mazzoni. Talk: “Open-field vibrational mating disruption: the effect on leafhopper pests and the vineyard ecosystem”, Future IPM 3.0, Riva del Garda (Italy).
- R. Nieri** and V. Mazzoni. Talk: “Open-field vibrational mating disruption: The effect on leafhopper pests and vineyard ecosystem”, 16th ISV international meeting, Rauischholzhausen (Germany).
- 2016 **R. Nieri** and V. Mazzoni. Talk: “The role of substrate-borne vibrations in pair formation and mating disruption of the leafhopper *Empoasca vitis* Göthe”, 1st International Symposium on Biotremology, S. Michele all’Adige (Italy).

National congress contributions

Only talks given as primary presenter are listed.

- 2017 **R. Nieri**, V. Mazzoni, S.D. Gordon and R. Krugner. Talk: “Mimicking the female to cheat another male: the rivalry strategy of a leafhopper”, 27th SIE Congress, Calci, Italy.
- 2016 **R. Nieri**. Talk: “Adult - brood vibrational communication in paper wasps (genus *Polistes*)”, 6th AISASP Student Meeting, Firenze, Italy.
- 2015 **R. Nieri**. Talk: “Good vibrations: the role of substrate-borne vibrations in mating behaviour of the leafhopper *Empoasca vitis*.”, 6th PhD day, Firenze, Italy.
- 2013 **R. Nieri**. Talk: “Geographical patterns of integration of a social parasite into a host colony”, 3rd AISASP Student Meeting, Firenze, Italy.
- 2012 **R. Nieri**. Talk: “Adult-immature brood interactions: a communication channel to be exploited by the social parasite *P. sulcifer* – preliminary studies”, 2nd AISASP Student Meeting, Parma, Italy.

Published conference proceedings

1. **Nieri R.**, Berardo A., Akassou I., Zaffaroni-Caorsi V., Anfora G., Pugno N.M. & Mazzoni V. (2023). Vibrational mating disruption against insect pests: five years of experimentation in the vineyard Proceedings of the 29th International Congress on Sound and Vibration. Ed. Eleonora Carletti, ISBN 978-80-11-03423-8 Published by: IIAV CZECH s.r.o.
2. **Nieri, R.**, Anfora, G., Mazzoni, V., Rossi Stacconi, M.V. (2021) Semiochemicals, semiophysicals and their integration for the development of innovative multi-modal systems for agricultural pests’ monitoring and control. Journal of Mediterranean Ecology, 19: 42.
3. **Nieri, R.** and Mazzoni, V. (2018). Open-field vibrational mating disruption: the effect on leafhopper pests and the vineyard ecosystem. IOBC-WPRS Bulletin – Integrated protection in viticulture, 139, 31-34.

4. Mazzoni, V., **Nieri, R.**, Gordon, S.D. & Krugner, R. (2018). Vibrational Mating Disruption of the glassy-winged sharpshooter, *Homalodisca vitripennis*, vector of *Xylella fastidiosa* in California. IOBC-WPRS Bulletin – Integrated protection in viticulture, 139, 28-30.
5. Krugner, R., **Nieri, R.**, Gordon, S.D. & Mazzoni, V. (2015). Substrate-borne vibrational signals in intraspecific communication of glassy-winged sharpshooters (GWSS). Research Progress Reports, Pierce's Disease and Other Designated Pests and Diseases of Wine Grapes, California Department of Food and Agriculture, December, 2015, Sacramento, California, 104-109.

PROJECTS AND FUND RAISING

Funded grants

- 2022 **PI** of the project “BIOTRAC: Applied biotremology for art and conservation”, competitive grant by the University of Trento for young researchers (**€10,000**)
- 2019-21 **co-PI** of the project “Exploiting vibrational communication of brown marmorated stink bug for detection and management” granted by Agricultural Research Foundation, Oregon State University (**\$12,500**)
- 2019 **WP coordinator** of the project “Pied Piper, Behavioral device using tremology to monitor and manage insect pests in vineyards.” Granted by the Oregon Wine Research Institute (**\$5,000**)
- 2018 **Collaborator** of the project “Study of life traits and communication of two treehoppers potential vectors of Red Blotch disease in grapevine” granted by Erath Family Foundation (**\$40,000**)

Awards

- 2018 Professional Development **Award** by the OSU Postdoctoral Association (**\$1,000**)
- 2012 **PhD scholarship** FIRS>T International PhD School granted by the Edmund Mach Foundation, project “Mating Disruption with Vibrational Signals - Study of the applicability to different pests of the vineyard”, supervisors: Dr. Valerio Mazzoni and Prof. Gianfranco Anfora (**€80,000**)
- 2013 1st **award** FameLab Trento, national competition in science communication (**€500**)
- 2013 1st **award** Researcher Open Mic, Trento, local competition in science communication

Travel awards

- 2017 by SIE (Italian Society of Ethology) for attendance at the XXVII Congress SIE
- 2016 by AISASP (Italian section of the International Union for the Study of Social Insects) for attendance at the Euro IUSSI 2016 (Meeting of the European sections)
- 2015 by IRSAE (International Research School in Applied Ecology) for attendance at the Entomology Congress 2015, organized by the "German Society for General and Applied Entomology"
- 2012 by SIE (Italian Society of Ethology) for attendance at the XXV Congress SIE
- 2012 by AISASP (Italian section of the International Union for the Study of Social Insects) for attendance at the 2nd AISASP Student Meeting

TEACHING ACTIVITY (UNIVERSITY LEVEL)

Official qualifications

15/06/2023 - 2034 **ASN (National Scientific Qualification)** as Associate Professor (II fascia) in the Italian higher education system, for the disciplinary field of 07/D1 -Plant pathology and entomology (patologia vegetale e entomologia).

Teaching experience

- 2022 – 23 **Assistant professor**, PhD in Agrifood and Environmental sciences, C3A, Università di Trento (12 hours)
- Course: Behavioral ecology and manipulation for insect pest control – module “Insect communication” (3 hours)
 - Course: Ecological and epidemiological modelling – module “Population dynamic of arthropods” (8 hours)
- Assistant professor**, Master in Agrifood innovation management, C3A, Università di Trento (25 hours)
- Course: Eco-sustainable methods for the prevention and management of invasive alien species
- Assistant professor**, Master in Mathematics, curriculum in Mathematics and Statistics for Life and Social Sciences, Università di Trento (12 hours)
- Course: Advanced Topics in Biomathematics
- 2022 **Invited lecturer**, Master in Agrifood innovation management, C3A, Università di Trento
- Course: Biopesticides and innovative techniques for plant protection
 - Main instructor: Prof. Gerardo Puopolo and Prof. Gianfranco Anfora
 - Lessons: “Principles of biotremology” and “Applied biotremology” (6 hours total)
- 2021 **Invited lecturer**, Master in Agrifood innovation management, C3A, Università di Trento
- Course: Biopesticides and innovative techniques for plant protection
 - Main instructor: Prof. Gianfranco Anfora
 - Lesson: “Insect drummers, vibrations applicability in horticulture” (2 hours)
- 2018 - 20 **Invited lecturer**, Oregon State University
- Course: Plagues, Pests, and Politics (ENT_300)
 - Main instructor: Prof. Vaughn Walton
 - Lessons: “Insect chemical communication” and “Insect acoustic communication” (4 hours of lesson each year, 2018-2019-2020)
- 2018 - 20 **Teaching Assistant**, Oregon State University
- Course: Plagues, Pests, and Politics (ENT_300)
 - Main instructor: Prof. Vaughn Walton
 - Activity: weekly grading and final evaluation (8 hours per week, 12 weeks per year, 2018-2019-2020).

- 2016 - 17 **Instructor and Teaching Assistant**, Bachelor in Agricultural and Agro-environmental Sciences, Free University of Bolzano
- Course: Agricultural and Forest Entomology 6 CP, AGR/11
 - Main instructor: Prof. Sergio Angeli
 - Activity: preparation of laboratory activities, lectures, tutoring, evaluation (28 hours)
- 2016 - 17 **Instructor and Teaching Assistant**, Master in Horticultural Science, Free University of Bolzano
- Course: Applied Entomology in Horticulture crops, 3CP AGR/11
 - Main instructor: Prof. Sergio Angeli
 - Activity: preparation of laboratory activities, lectures, tutoring, evaluation (12 hours)
- 2015 **Invited lecturer**, Master in Viticulture and Oenology, Fondazione Edmund Mach.
- Course: Biopesticides and innovative control methods against insect pests and pathogens (module Bioinsecticides, semiochemicals and innovative control methods against insect pests)
 - Main instructor: Prof. Gianfranco Anfora
 - Lessons: “Vibrational communication in insects and vibrational mating disruption” (2 hours)

Tutorship

- 2022-23 Università di Trento, mentoring 3 PhD students, 2 master student, 3 bachelor students;
Università di Bari, 1 master student;
Università di Pavia, 1 master student;
Università di Modena-Reggio Emilia, 1 bachelor student.
- 2021-22 Università di Trento, mentoring 4 PhD students;
Università di Parma, 1 master student;
Università di Bari, 1 master student;
Università di Bologna, 1 master student.
- 2021 Oregon State University, mentoring 1 master’s student.
- 2018 -20 Oregon State University, co-supervisor of 5 bachelor’s students, 1 master’s student, 1 PhD student.
- 2017-18 Università di Udine - Università degli Studi di Trento, co-supervisor of 1 bachelor’s student;
- 2015-17 Università degli Studi di Modena e Reggio Emilia, co-supervisor of 2 bachelor’s students;
- 2014 University of Florence, co-supervisor of 1 master’s student;

Students' publications/congress contributions

- 2023 Galvagni S. Sustainable management of *Scaphoideus titanus*: survey of natural enemies and first area-wide application of vibrational mating disruption.
- Master thesis in Agrifood Innovation Management, Università degli Studi di Trento.
 - Supervisors: Dr. **Nieri R.**, Prof. Anfora G.
- Boschetti M. Preliminary investigation on the role of vibrations in three species of aphids of agronomic importance and in the context of interaction with associated ants.
- Master thesis in Ecology and ethology for the conservation of nature
 - Supervisors: Prof. Grasso D.; Co-supervisors: Dr. Mazzoni V., Dr. Nieri R.
- 2022 Skomina, A. Effetto dell'invecchiamento sull'ovideposizione di *Scaphoideus titanus*.
- Bachelor thesis (L-25) in viticulture and enology, Università degli Studi di Trento.
 - Supervisors: Dr. **Nieri R.**, Prof. Anfora G.
- 2020 Shumway, E., **Nieri, R.**, Udell, C., & Selker, J.S. Autonomous vibrational analysis and insect behavioral manipulation with Pied Piper. In AGU Fall Meeting 2020.
- 2019 Bozagic, A., **Nieri, R.**, Wiman, N., & Walton, V. Trap Design Based on Behavioral Manipulation of Spotted Wing Drosophila. Summer Undergraduate Research Symposium at Oregon State University.
- 2018 Fagan, C. Effetto della confusione sessuale vibrazionale in vigneto: monitoraggio di cicaline e principali predatori.
- Bachelor thesis (L-25) in viticulture and enology, Università degli Studi di Udine e Università degli Studi di Trento.
 - Supervisors: Prof. Anfora G., Dr. **Nieri R.**

DISSEMINATION ACTIVITIES

Outreach events and activities

- 2023 **Guest instructor.** Sharper Night outreach festival, MUSE (Trento, Italy).
- 2022 **Invited speaker** for the project “Scienza in paese” organized by Associazione Chirone, one talk for the general public (library of Offlaga, BS) and one talk for high school students (Manerbio, BS), “Conoscere il linguaggio degli insetti per un mondo più sostenibile”.
- Invited speaker** caffè scientifico “Insetti sociali: il linguaggio delle vibrazioni”, organized by Associazione Chirone, online (<https://www.youtube.com/watch?v=AKR486J2uAQ>).
- 2021 **Chairman** “caffè scientifici”. Sharper Night outreach festival, MUSE (Trento, Italy).
Guest instructor. Sharper Night outreach festival, MUSE (Trento, Italy).
- 2020 **Invited speaker.** Tiramiscienze teglia n. 10 “Comunicare con le vibrazioni: il mondo animale nascosto ai nostri sensi”, online streaming (<https://www.youtube.com/watch?v=EVNMRnl9xck>).
- Invited speaker.** Incontri di etologia, ecologia, evoluzione ai tempi del covid19 “Comunicazione vibrazionale: cos’è e come può esserci utile”, online (<http://www.incontridizooologia.it>).
- 2019 **Guest instructor.** Grape Day organized by the Oregon Wine Research Institute “Recent Advances in Viticulture, Enology and Wine Economics Research” (Corvallis, Oregon, USA)
- 2014-18 **Coordinator** of Trento and Rovereto events for Pint of Science© Italy (international scientific festival).
- 2017 **Guest instructor.** European Researchers’ Night outreach festival, MUSE (Trento, Italy).
- 2015 **Guest instructor.** European Researchers’ Night outreach festival, MUSE (Trento, Italy).
- 2013 - 14 **Educational Operator** at MuSe – Museum of Science, Trento, Italy. Pilot and guide for visitors of the museum, text writing and actress for virtual guided tour of the museum.
- 2013 **Guest instructor.** Darwin Day outreach festival, MUSE (Trento, Italy).
- 2013 **Guest instructor.** European Researchers’ Night outreach festival, University of Trento (Italy).

Cover page

1. 2018 Insect Science, Volume 25, Issue 5. The picture of *Empoasca vitis*.

Non-refereed publications

1. Zaffaroni Caorsi V., Nieri R., Pugno N.M., Mazzoni V. (2023) Cicaline della vite: un controllo sostenibile con le vibrazioni. *VITE & VINO* 1: 14-20.

2. **Nieri, R.**, Mazzoni, V., Veronelli, V., Baldo, M. & Lotti, C. (2018) Confusion sexual por vibracion: proyectos actuales y perspectivas futuras. *Phytoma-España*, 298, Abril 2018.

Extension publications (peer-reviewed)

1. Walton M. V., Brewer L., Dalton D. T., **Nieri R.**, Park K., Pfab F., Rendon D., Tait G., Wiman N., Rossi Stacconi M.V. (2019). How seasons affect population structure, behavior and risk on spotted-wing drosophila (*Drosophila suzukii*). Oregon State University Extension Service, Vol. EM92561. Corvallis, OR.
2. Rendon D., Mermer S., Brewer L., Dalton D.T., Bezerra Da Silva C., Lee J.C., **Nieri R.**, Park K., Pfab F., Tait G., Rossi Stacconi M.V., Wiman N., Walton V.M. (2019). Cultural control strategies to manage spotted-wing drosophila (*Drosophila suzukii*). Oregon State University Extension Service, Vol. EM9262. Corvallis, OR.
3. Rossi Stacconi M.V., Brewer L., Dalton D.T., Lee J.C., **Nieri R.**, Park K., Pfab F., Tait G., Vaughn Walton M.V. (2019). Host range and characteristics affecting fruit susceptibility to spotted-wing drosophila (*Drosophila suzukii*). Oregon State University Extension Service, Vol. EM9263. Corvallis, OR.
4. Tait G., Rendon D., Brewer L., Dalton D.T., Lee J.C., **Nieri R.**, Park K., Pfab F., Rossi Stacconi M.V., Vaughn Walton M.V. (2019). Non-crop host plants utilized by spotted-wing drosophila (*Drosophila suzukii*). Oregon State University Extension Service, Vol. EM9264. Corvallis, OR.
5. Mermer S., Rendon D., Brewer L., Dalton D.T., Lee J.C., **Nieri R.**, Park K., Pfab F., Rossi Stacconi M.V., Tait G., Walton M.V. (2019). Optimizing chemical control of spotted-wing drosophila (*Drosophila suzukii*): spray application technologies and their effects on spray deposition. Oregon State University Extension Service, Vol. EM9265. Corvallis, OR.
6. Mermer S., Brewer L., Dalton D.T., Lee J.C, **Nieri R.**, Park K., Pfab F., Rossi Stacconi M.V., Tait G., Walton M.V. (2019). Improved chemical control strategies for spotted-wing drosophila (*Drosophila suzukii*) in Oregon: insecticide efficacy and seasonal application strategies. Oregon State University Extension Service, Vol. EM9266. Corvallis, OR.

International media coverage of my research

1. Discover, *Wine And Whines: Listening To Insect Booty Calls To Preserve Vineyards* by Troy Farah. June 12th, 2018. <https://www.discovermagazine.com/environment/wine-and-whines-listening-to-insect-booty-calls-to-preserve-vineyards>
2. GoodFruit Grower, *A passion for pear psylla love songs* by R Courtney & TJ Mullinax. March 1st 2020 issue. <https://www.goodfruit.com/a-passion-for-pear-psylla-love-songs-video/>
3. GoodFruit Grower, *IPM using playback against pests* by R Courtney. March 8th 2023. <https://www.goodfruit.com/ipm-using-playback-against-pests/>

OTHER RELEVANT EXPERIENCES

Commissions of trust

- 2023 Member of the final exam commission for the PhD in Mountain Environment and Agriculture, Free University of Bozen, candidate Chaymae Fennine;
- 2022-present Board member Department of Mathematics and C3A (Center for Agriculture, Food and Environment), Università degli Studi di Trento;
- 2019-20 Board member Oregon State University (OSU) Postdoctoral Association, role: treasurer (Member of Directors);
- 2018-19 Board member Oregon State University (OSU) Postdoctoral Association, role: secretary (Member of Directors);
- 2017-18 Board member C3A (Center for Agriculture, Food and Environment, Università degli Studi di Trento), role: representative of postdoctoral researchers.

Editorial role

- 2023-present Associate editor for Frontiers in Insect Science, section Invasive Insect Species section

Reviewer for peer-reviewed journals (number of reviews to date)

Journal of Pest Science (4)	Ethology (1)	Entomologia Generalis (1)
Insect Science (2)	Physiological Entomology (1)	Annals of the Entomol Soc of Am (2)
The Science of Nature (1)	Insects (5)	Entomologia Experimentalis et Applicata (1)
PeerJ Life & Environment (2)	Pest Management Science (1)	Sustainability (1)
Metabolites (1)	Journal of Agricultural Research (1)	Biology Letters (1)

Other relevant skills

- Good expertise in insect rearing techniques (e.g. leafhoppers, treehoppers, stink bugs, fruit flies, social Hymenoptera).
- Extensive experience in the study of vibrational communication.
- Comprehensive knowledge of several statistical software (e.g. Statistica, SPSS, KyPlot, Past)
- Good command of audio and video software (e.g. Adobe Audition, Audacity, Raven, Wondershare, Adobe Premiere Pro, BK Connect).

Language skills (*Italian native speaker*)

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C1	C1
French	B2	B2	A2	A2	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user (Common European Framework of Reference for Languages)