Curriculum Vitae

Tomás Veloz

Interdisciplinary scientist with background in physics, mathematics, and computer science. Published more than 50 articles in diverse areas including pure mathematics, complex systems, cognitive science, biochemistry, ecology, epidemiology, social systems, sustainability, education, among others. Excellent networker with vast experience in international and interdisciplinary scientific collaboration not only in research, but also in grant writing, organization of scientific events, edition of special issues and books, etc. Affiliated to various academic institutions in Latin America and Europe, regularly consults to AI-related projects and ventures, and is also the founder and director of the Foundation for the Interdisciplinary Development of Science, Technology and Arts (www.dicta.cl), a NGO that promotes interdisciplinary knowledge towards projects with social impact.

Personal information

- **Date of birth**: 12/23/1983
- **e-mail**: tomas.veloz@vub.be
- **Civil info**: Chilean/Single
- **Languages**[a]: Spanish (N), English (F), Italian (A), French (I)

Scholar Databases

- scholar.google: user=q7HbZQ4AAAAJ
- ORCID number: 0000-0003-3014-8340
- SCOPUS ID: 36873504800

[a] N: native; F: fluent, A: advanced; I: intermediate

Education

- **B.Sc. in Physics**: University of Chile, 2002-2005. Ranked 3 over 11.
- **B.Sc. in mathematics**: University of Chile, 2006-2007. Ranked 3 over 20.
- **M.Sc. in computer science**: University of Chile, 2008-2010. Graduated with highest honors.
- **Ph.D Interdisciplinary studies (IGS)**: University of British Columbia - Okanagan, 2011-2015. Best IGS thesis award, 2015.

Distinctive Features Summary

- **Highly Productive & Collaborative:**
  - Publications: 50+ ($\sim 6/$year, last 5 years)
  - Citations 1000+ (700+ from 2020) ; H-index: 21
  - International-team-based collaborative papers in last 3 years: 10+
  - Special issues/books edited in last 3 years: 5+
- **International & Interdisciplinary**
  - Participation in international conferences/workshops last 5 years: 40+ (10+ as organizer)
  - Research visits/internships: $\sim$3/year on average (last 10 years).
  - Disciplines in which he has published: 7+
  - Recent grants (funder-country): Sustainability (VLIRUOS-BE), Conflict Modeling (XCEPT-UK), Interdisciplinarity (UTEM-CL), Ecology (ANID-CL), Cybernetics (Templeton-US), Epidemiology (AirForce-US), Ecology (ANID-CL), Computer Science (MSCA-EU).
- **Self-driven & Leadership**
  - Institutions created: 2 (Renewable energies - for profit 2007, Interdisciplinarity - NGO 2019)
  - Research groups formed/directed in last 5 years: 4
  - Supervising experience: 5 PhD, 2 Masters, 3 workers at his NGO, 10+ volunteering teams.
- **Other Experiences**
  - Supported renewable energies development in indigenous communities (2007-2010)
  - Consultant on Digital Transformation for Chilean government (2019-2020),
  - Advisor at various AI-related startups (2021-),
  - Directs an NGOs with social impact (2019-),
  - Guitar and Trumpet player, regularly performing (2014-)
  - Hot Yoga practitioner (2018-).

Key publications (full list of publications at the end):

1. Veloz, T., Razeto-Barry, P., Dittrich, P., & Fajardo, A. (2014). Reaction networks and evolutionary game theory. *Journal of Mathematical Biology*, 68(1), 181-206.
   Impact: This article introduces a method for studying the evolution of co-operation and strategy co-existence problems using reaction networks. It is the first application of a "Chemical Game Theory" model (see wikipedia.org/wiki/Chemical_game_theory).

2. Aerts, D., Sozzo, S., & Veloz, T. (2016). New fundamental evidence of non-classical structure in the combination of natural concepts. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 374(2058), 20150095.
   Impact: We found a strong deviation from rationality, measured as a deviation from the DeMorgan laws, in human categorization of complex categories. Interestingly, such deviation follows a particular statistical pattern, which is compatible with an extended quantum-rationality framework.

3. Veloz, T. (2020). The Complexity–Stability Debate, Chemical Organization Theory, and the Identification of Non-classical Structures in Ecology. *Foundations of Science*, 25(1), 259-273.
   Impact: Interdisciplinary model relating self-organising and logico-algebraic structures. Namely, a reaction network model of an ecological system induces a non-distributive lattice of self-maintaining structures, suggesting the existence of non-boolean logical properties in the structural evolution of ecosystems.

4. Veloz, T., & Razeto-Barry, P. (2017). Reaction networks as a language for systemic modelling: Fundamentals and examples/On the study of structural changes. Systems, 5(1/2), 11/30.
   Impact: A milestone in the application of reaction networks to model complex interdisicplinary phenomena, in two parts. The first part explains why and how reaction networks provide an alternative to traditional complex systems models. In the second part technical results about structural evolution are derived.

5. Veloz, T., et al. (2021). An Analytic Framework for Systems Resilience Based on Reaction Networks. *Complexity*.https://doi.org/10.1155/2022/9944562.
   Impact: This article presents models the notion of structural impact for reaction networks, which allows formalising the elusive notion of 'resilience' considering perturbations that can change the state, structure, and dynamical rules of a system.

Working Experience

Academic positions (role, topic)

- February 2024-(current) **Postdoc, 50%**, Centre Leo Apostel, Free University of Brussels, Belgium. (support grant for international cooperation and prof. establishment)

- November 2023-(current). **Assistant Professor, Full time**, Mathematics Department, Universidad Tecnológica Metropolitana. Role (Interdisciplinary modeling + networking with international research centers).

- December 2020-August 2023. **Postdoc, 100%**, Centre Leo Apostel, Free University of Brussels, Belgium. (co-PI, Reaction networks applied to model the Origin of Goal Directedness)

- March 2020 to October 2020. **Postdoc, 100%**, Fundación Ciencia & Vida, Santiago, Chile (Team leader, Epidemiological modeling and data science)

- March 2017 to March 2020. **Postdoc, 100%**, Institute of Philosophy and Complexity Science, Santiago, Chile. (PI, Reaction networks for studying the Complexity-Stability debate in Ecology)

- March 2017-(current). **Lecturer, 10%** Universidad Andrés Bello, Santiago, Chile (Philosophy of Science for Biologists)

- January 2016 to March 2017. **Postdoc, 100%**, Centre Leo Apostel, Free University of Brussels, Belgium. (Reseacher, Quantum-inspired modeling of irrational cognitive phenomena)

- December 2013-2023. **Lecturer, 10%** Institute of Philosophy and Complexity Sciences, Santiago, Chile (Complex Systems Modeling)

Current (ad honorem) Academic Positions

- Centre Leo Apostel - Vrije Universiteit Brussel (Research Group Director)

- Foundation for the Interdisciplinary Development of Science, Technology and Arts, Santiago, Chile (Founder/Director)

Recent Granted Research Projects

- (Researcher) XCEPT: Managing climate, peace and security risks from the borderlands of the West African Sahel Belt (CPS-WASahel). 500.000 EUR approx.

- (PI) VLIRUOS: Cooperation between VUB and University of Philippines Diliman in Sustainability Modeling. 10.000 EUR approx.

- (PI) Universidad Tecnológica Metropolitana: Modeling multidimensional disturbances and stability in ecology with reaction networks. ANID-Chile. 100.000 EUR approx.

- (PI) Universidad Tecnológica Metropolitana: Modeling multidimensional disturbances and stability in ecology with reaction networks. ANID-Chile. 100.000 EUR approx.

- (co-PI) Centre Leo Apostel, Vrije Universiteit Brussel: *The Origins of Goal-Directedness: a Formal Scenario based on Chemical Organization Theory and Cybernetics*. Grant ID #61733 John Templeton Foundation, 2020-2023. 1.250.000 EUR approx.

- (Team leader) Fundación Ciencia & Vida: *COVID19GEOMODELLER (C19GM-US): A GEOREFERENCED MODEL TO STUDY THE DISPERSION OF THE SARS-COV2 VIRUS*. Air Force Office of Scientific Research under award number FA9550-20-1-0196. 2020-2021. 250.000 EUR approx.

- (PI) Institute of Philosophy and Complexity Science: *Chemical organization theory and its application to the complexity-stability problem in ecology*, Fondecyt 3170122, 2017-2020, 120.000 EUR approx.

- (Co-PI) Institute of Philosophy and Complexity Science: *An exact theoretical study of evolutionary forces in general models of molecular evolution*, Fondecyt 1150229, 2015-2019, 180.000 EUR approx.

- (Researcher) Universidad de Talca: *Investigación asociativa traslacional sobre procesos cognitivos, neurales y relacionales de la conducta adaptativa y psicopatológica* . Programa Investigación Asociativa, 2018-2023. 380.000 EUR approx.

- (Researcher) Centre Leo Apostel, Vrije Universiteit Brussel: *Quantum Information Access and Retrieval Theory*, European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 721321, 2017-2021, 3.500.000 EUR approx.

Recent Directive Experience

- December 2020-present. Group Leader, Systemic Modeling and Applications group, Centre Leo Apostel, Vrije Universiteit Brussels.
- April 2019-present. Director, Foundation for the Interdisciplinary Development of Science, Technology and Arts, Chile.
- January 2015-July 2019. Director of the Systemics department, Institute of Philosophy and Complexity Science, Chile.
- 2010-2016. Founder and CEO of Sociedad Eolectrica Ltda.

Recent Advisory Positions

- September 2024- Scientific Advisor J3DI.AI (AI collaboration platform), Estonia.
- September 2021- Scientific Advisor, Intodental SPA (AI-based health startup), Chile.
- October 2019- December 2020. Scientific consultant, Comptroller General of the Republic (Equivalent of Superior/General Audit Court), Chile.
- May-December 2016. Scientific consultant, STARCOM AG (AI-powered market intelligence), Switzerland.

Recent Teaching Experience

- 2025 (in preparation), Introduction to Interdisciplinary Complex Sciences, VUB (microcredential online course).
- 2024, Structural Modeling, Mathematics Dpt., UTEM, M.Sc. Level
- 2024, Scientific Writing, Mathematics Dpt., UTEM, PhD level
- 2024, Introduction to Biomathematics, Mathematics Dpt., UTEM, M.Sc. Level
- 2024, Biochemical Mathematics, Mathematics Dpt., UTEM, M.Sc. Level

- 2023, Stochastic Modeling, Mathematics Dpt., UTEM, M.Sc. Level
- 2023, Scientific Writing, Mathematics Dpt., UTEM, PhD level
- 2023, Numerical methods, Mathematics Dpt., UTEM, 3rd year Engineering level
- 2022, Short course 'Introduction to Chemical Organization Theory', Mathematics Dpt., Technical Metropolitan University of Chile (UTEM).
- 2019, Introduction to Data Science. Institute of Philosophy and Complexity Science, Chile.
- 2018-(ongoing). Philosophy of Science, Biology department, Universidad Andres Bello, Santiago, Chile.
- $*$ I am regularly invited to support (and often lecture at) my closest collaborators' courses, typically in mathematics, philosophy, and complex systems.

Recent Editorial work

- Guest editor - International Journal of Theoretical Physics: Special issue 'International Quantum Structures Association 2024" 2024
- Guest editor - Entropy: Special issue "Complex Interdisciplinary Phenomena: Modeling and Analysis" 2023
- Book editor - Springer: "Trends and Challenges in Cognitive Modeling - An Interdisciplinary Approach Towards Thinking, Memory, and Decision-Making Simulations." 2023
- Guest Editor - Constructivist Foundations "Education in the 21st Century" 2022
- Guest editor - Entropy: Special issue "Complexity and Evolution" 2021
- Guest editor - Complexity: Special issue of the Workshop "Process Modeling and Self-Organization: Methods and Applications", 2020
- Guest editor - Foundations of Science: Special issue of the Conference "Worlds of Entanglement 2019"

- Guest editor - Soft Computing: Special issue of the Conference "International Symposium on Molecular Logic and Computational Synthetic Biology 2018"
- Guest editor - Foundations of Science: Special issue of the Conference "Worlds of Entanglement 2017"

Scientific Societies Affiliations and Participation in Events

Affiliations to Scientific Societies and Institutions

- International Quantum Structures Association (elected next secretary)
- International Society for Artificial Life (member)
- Chilean Society of Philosophy of Science (member)
- Chilean Education Commission (project reviewer)

Recent Scientific Events [1]

- $^{\boxtimes}$ N2 conference: Noosphere and the Global South, University Mohammed VI Polytechnic, Morocco, 2024
- *† Sixteenth conference of the International Association of Quantum Structures, Brussels, July 2024.
- $^{\boxtimes}$, International Workshop on Mathematical Biology, Boracay, Philippines, 2024
- * Causal Cognition in Human and Machines, Oxford University, UK, 2024
- The Future of Human Collective Consciousness, University of California, Berkeley, USA, 2023
- $^{*\boxtimes}$ The Artificial Life Symposium, Hokkaido University, Sapporo, Japan, 2023.
- † Workshop on artificial intuition. Centre Leo Apostel, VUB, Belgium, October 2023.

[1] Organizer mark: †, Invited/Keynote mark: $^{\boxtimes}$, Paper mark *, Poster mark: **

- † Workshop: life x machine harmony: engineering meaningful communication between substrates. Centre Leo Apostel, VUB, Belgium, September 2023.
- *⊠ The Artificial Life Symposium, Hokkaido Unviersity, Japan. August 2023.
- ⊠ Creatividad y colaboración en entornos educativos STEAM: Aproximación desde el enfoque 4E, Universidad de la Serena, Chile, May 2023
- † The Artificial Life Symposium (Online). Workshop on Reaction network modelling of Goal-directedness, July 2022.
- International Quantum Structures Association Biennal Conference, Tropea, Italy, June 2022
- † Workshop on Reaction network modelling of Goal-directedness, University of Granada, Spain, February 2022.
- † Workshop New ideas in Cognitive Modeling: Conceptual spaces, Research Center on Cognitive Sciences, University of Talca, Chile, October 2021
- † Workshop New ideas in probabilistic cognitive and behavioral modeling, Research Center on Cognitive Sciences, University of Talca, Chile, July 2021
- † Workshop New ideas about Quantum theory and human behaviour, Research Center on Cognitive Sciences, University of Talca, Chile, April 2021
- †⊠ Workshop quantum-inspired models of cognitive phenomena, Research Center on Cognitive Sciences, University of Talca, Chile, January 2021
- ⊠ International E-Conference on Virology, Infectious Diseases and COVID-19 December 2020.
- ** Extended Views on Catalysis, Earth Life Science Institute, Tokyo, Japan, February 2020.
- *† The Artificial Life Symposium, Newcastle University, England, August 2019.

- *† Conference Worlds of Entanglement, Instituto de filosofía y ciencias de la complejidad, Chile, January 2019. information theory, University of Cagliari, Cagliari, Italy, October 2018.
- * 10th congress of the European Union for Systemics (UES2018), Brussels, Belgium, October 2018.
- *† International Symposium on Molecular Logic and Computational Synthetic Biology, Chile, December 2018.
- * Workshop El desafío de una sociedad más horizontal y menos desigual, Santiago, Chile, December 2018.
- * MatBio, UTEM, Santiago, January 2018.
- * Quantum Cagliari 2018: Quantum structures & quantum information theory. October 8-10, University of Cagliari, Cagliari, Italy.
- † Symposium Worlds of Entanglement, Free University of Brussels, Belgium, September 2017.

Invited Lectures

- CrossLabs, Kyoto, Japan, (2023).
- Ecology Department, University of California Davis, USA (2023, Online)
- Mathematics Department, Metropolitan Technical University, Chile (2022)
- Ecology Department, University of Talca, Chile (2022)
- Dutch Institute for Emergent Phenomena, Vrije Universiteit Amsterdam (2022).
- Jena Centre of Bioinformatics, Friederich Schiller Universitat, Jena, Germany (2021)
- Institute of Advanced Studies, University of Bologna (2021)
- Faculty of Social and Political Science, University of Granada (2021)
- Mathematical Ecology Group, Wurtzburg University (2020)

- Centre Leo Apostel, Vrije Universiteit Brussel (2018)
- Facultad de Matemáticas, Universidad Católica del Norte, Antofagasta, Chile (2018)
- Facultad de Matemáticas, Universidad Católica del Maule, Talca, Chile (2018)
- Facultad de Matemáticas, Universidad Tencológica Metropolitana, Santiago, Chile (2018)
- Facultad de Matemáticas, Universidad Católica, Santiago, Chile (2018)
- Instituto de Ingeniería y Agronomía, Universidad Nacional Arturo Jauretche, Buenos Aires, Argentina (2017)
- Facultad de Filosofía, Universidad de Buenos Aires, Buenos Aires, Argentina (2017)
- Facultad de Ciencias Exactas, Universidad de Buenos Aires, Buenos Aires, Argentina (2017)
- Ecology department, University of British Columbia, Vancouver, Canada (2016)
- Okanagan College, Kelowna, Canada (2016)
- Mathematics Department, University of British Columbia, Kelowna, Canada (2016)
- Philosophy of Physics Group, Decartes Institute, Utrecht University, Utrecht, Neatherlands (2015)
- Computational Semantics Group, Saarland University, Saarbrucken, Germany (2015)
- STARCOM AG, Baden, Switzerland (2015)
- Conservatoire National des Arts et Métiers, Paris, France (2015)
- Physics Department, Technical University of Dortmund, Dortmund, Germany (2015)

- Institute for logic, language and computation, Amsterdam University, Amsterdam, Neatherlands (2015)
- Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany (2015)
- Philosophy department, Eötvös University, Budapest, Hungary (2015)

Recent long (1 month+) visits/internships

- August-Dec 2023. Centre Leo Apostel. Vrije Universiteit Brussel.
- March 2022. Metropolitan Technical University, Santiago, Chile.
- February 2020. Earth Life Science Institute, Tokyo Tech. University, Tokyo, Japan.
- July-August 2018. Centre Leo Apostel. Vrije Universiteit Brussel.
- October-November 2015. Center Leo Apostel, Vrije Universiteit Brussel.
- February 2015-May 2015. Management Department, University of Leicester, Leicester, England.
- December 2014-February 2015. Institute of Philosophy and Complexity Sciences. Chile.
- November 2014. Mathematics Department. Zhejiang University. Hangzhou, China.
- September-November 2014. Computational Intelligence and Internet Applications Lab. Tianjin University. Tianjin, China.

  Honors & Awards

  - January 2023. Travel Grant Entropy journal (300 CHF)
  - June 2016. Best Thesis Award IGS program. University of British Columbia (200 USD approx).
  - January 2015 - June 2015. University of British Columbia Graduate Fellowship (5000 USD approx).
  - January 2014 - June 2014. University of British Columbia Graduate Fellowship (5000 USD approx).

- September 2012-January 2015. University of British Columbia Graduate Fellowship (5000 USD approx).
- April-June 2012. Research visit Scholarship from Center Leo Apostel, Free University of Brussels (5000 USD approx).
- August 2011. University of British Columbia, Psychology department Travel Award (250 USD approx).
- July 2011-2015. University of British Columbia PhD Tuition Award (15000 USD approx).
- January 2011-2015. University of British Columbia International Partial Tuition Scholarship (1500 USD approx).
- July 2011. University of British Columbia Graduate Entrance Scholarship (5000 USD approx).
- June 2011. Santa Fe Complex Systems Institute Summer School Scholarship (2500 USD approx).
- March 2010. Research visit Scholarship from University Claude Bernard I, Lyon France (500 USD approx).
- February 2010 to April 2010. Research visit Scholarship from the Biosystems analysis group, Friedrich Schiller Universit at, Jena, Germany (700 US approx).
- November 2009. Renewables Academy (RENAC) Scholarship to attend a Renewable energies course in Berlin, Germany (2000 USD approx).
- 2008-2009. Academic Excellence Scholarship for Master students at the Computer Science department, University of Chile (5000 USD approx.).

Full list of Publications

Refereed contributions

1. Aguayo, C., Videla-Reyes, R., & Veloz, T. (2023). Entangled cognition in immersive learning experience. Adaptive Behavior, 10597123231183996.

2. Videla, R., Veloz, T., & Pino, M. C. (2023). Catching the Big Fish: A 4E-Cognition Approach to Creativity in STEAM Education. Constructivist Foundations, 18(2), 295-307.

3. Veloz, T. (2023). Random Walks on Structures, Autopoiesis and Meta-learning. Constructivist Foundations, 18(2), 281-283.

4. Veloz, T., & Maldonado, P. (2022). Modelling Worldviews as Stable Metabolisms. Entropy, 24(10), 1476.

5. Veloz, T., Maldonado, P., Bussseniers, E., Bassi, A., Beigi, S., Lenartowicz, M., & Heylighen, F. (2022). Towards an Analytic Framework for System Resilience Based on Reaction Networks. Complexity, 2022. Article ID 9944562, 29 pages, 2022. https://doi.org/10.1155/2022/9944562

6. Veloz, T. (2021) Goals as Emergent Autopoietic Processes, *Frontiers in Bioengineering and Biotechnology* (9). DOI: 10.3389/fbioe.2021.720652

7. Videla, R., Aguayo, C., & Veloz, T. (2021, September). From STEM to STEAM: An enactive and ecological continuum. In Frontiers in Education (Vol. 6, p. 709560). Frontiers Media SA.

8. Busseniers, E., Veloz, T., & Heylighen, F. (2021). Goal directedness, chemical organizations, and cybernetic mechanisms. *Entropy*, 23(8), 1039.

9. Veloz, T., & Flores, D. (2021). Reaction Network Modeling of Complex Ecological Interactions: Endosymbiosis and Multilevel Regulation. *Complexity*, 2021.

10. Rubin, S., Veloz, T., & Maldonado, P. (2021). Beyond planetary-scale feedback self-regulation: Gaia as an autopoietic system. *Biosystems*, 199, 104314.

11. Veloz, T., & Flores, D. (2021). Toward endosymbiosis modeling using reaction networks. Soft Computing, 1-10.

12. Veloz, T. (2020). The complexity–stability debate, chemical organization theory, and the identification of non-classical structures in ecology. *Foundations of Science*, 25(1), 259-273.

13. Aerts, D., de Bianchi, M. S., Sozzo, S., & Veloz, T. (2020). On the conceptuality interpretation of quantum and relativity theories. *Foundations of Science*, 25(1), 5-54.

14. Aerts, D., Beltran, L., Geriente, S., de Bianchi, M. S., Sozzo, S., Van Sprundel, R., & Veloz, T. (2019). Quantum Theory Methods as a Possible Alternative for the Double-Blind Gold Standard of Evidence-Based Medicine: Outlining a New Research Program. *Foundations of Science* , 24(2), 217-225.

15. Aerts, D., Sassoli de Bianchi, M., Sozzo, S., & Veloz, T. From Quantum Axiomatics to Quantum Conceptuality. *Activitas Nerviosa Superior*, (2019). https://doi.org/10.1007/s41470-019-00030-7

16. Aerts, D., Melucci, M., de Bianchi, M. S., Sozzo, S., & Veloz, T. (2018). Quantum structures in computer science: Language, semantics, retrieval. *Theoretical Computer Science*.

17. Belmonte, F., & Veloz, T. (2018). On the classical-quantum relation of constants of motion. *Frontiers in Physics*, 6, 121.

18. Aerts, D., de Bianchi, M. S., Sozzo, S., & Veloz, T. (2018). Modeling Human Decision-Making: An Overview of the Brussels Quantum Approach. *Foundations of Science*, 1-28.

19. Aerts, D., Arguëlles, J. A., Beltran, L., Geriente, S., de Bianchi, M. S., Sozzo, S., & Veloz, T. (2018). Spin and Wind Directions II: A Bell State Quantum Model. *Foundations of science*, 1-29.

20. Aerts, D., Arguëlles, J. A., Beltran, L., Beltran, L., Distrito, I., de Bianchi, M. S., Sozzo, S., Veloz, T. (2018). Towards a Quantum World Wide Web. *Theoretical Computer Science*, 752, 116-131.

21. Veloz, T., Razeto-Barry, P. (2017b). Reaction Networks as a Language for Systemic Modeling: On the Study of Structural Changes. *Systems*, 5(2), 30.

22. Veloz, T., Razeto-Barry, P. (2017a). Reaction networks as a language for systemic modeling: Fundamentals and examples. *Systems*, 5(1), 11.

23. Aerts, D., Arguëlles, J. A., Beltran, L., Beltran, L., de Bianchi, M. S., Sozzo, S., Veloz, T. (2017). Testing Quantum Models of Conjunction Fallacy on the World Wide Web. it International Journal of Theoretical Physics, 1-13.

24. Aerts, D., Arguëlles, J. A., Beltran, L., Geriente, S., de Bianchi, M. S., Sozzo, S., Veloz, T. (2017). Spin and wind directions I: Identifying entanglement in nature and cognition. Foundations of Science, 1-13.

25. Aerts, D., Sozzo, S., Veloz, T. (2016). New fundamental evidence of non-classical structure in the combination of natural concepts. *Phil. Trans. R. Soc. A*, 374(2058), 20150095.IF 2.86.

26. Veloz, T., Desjardins, S. (2015). Unitary Transformations in the Quantum Model for Conceptual Conjunctions and Its Application to Data Representation. *Frontiers in psychology*, 6. IF 2.8

27. Aerts, D., Sozzo, S., Veloz, T. (2015). Quantum structure of negation and conjunction in human thought. *Frontiers in psychology*, 6. IF 2.8

28. Veloz T., Razeto P., (2015). The State Context Property Formalism: From Concept Theory to the Semantics of Music, *Soft Computing*, 1–9. IF 1.27.

29. Aerts D., Sozzo S., Veloz T. (2015). Quantum Structure in Cognition and the Foundations of Human Reasoning, *International Journal of Theoretical Physics*, 54(12), 4557-4569. IF 1.18.

30. Aerts D., Sozzo S., Veloz T. (2015). The Quantum Nature of Identity in Human Concepts: Bose-Einstein Statistics for Conceptual Indistinguishability, *International Journal of Theoretical Physics*, 1-14, http://dx.doi.org/10.1007/s10773-015-2620-4, IF 1.18.

31. Veloz T., Pinto M. (2014). Existence, Computability and Stability for Solutions of the Diffussion Equation with General Piecewise Constant Argument. *Journal of Mathematical Analysis and Applications*, 426.1: 330-339. IF 1.2.

32. Kreyssig P., Wozar K., Peter S., Veloz T., Ibrahim B., Dittrich P. (2014). Effects of Small Particle Numbers on Long-Term Behaviour in Discrete Biochemical Systems. *Bioinformatics*, 30 (17): 475-481. IF 4.98.

33. Veloz T., Razeto-Barry P., Dittrich P., Fajardo A. (2014). Reaction networks and evolutionary game theory. *Journal of mathematical biology*, 68.1-2: 181-206. IF 1.84.

34. Kreyssig P., Escuela G., Reynaert B., Veloz T., Ibrahim B., Dittrich P. (2012). Cycles and the Qualitative Evolution of Chemical Systems. *PLOSOne* 7(10): e45772. doi:10.1371/journal.pone.0045772. IF 3.53.

Recent Proceedings, Book Chapters, and Editorials

35. Veloz, T., (2024, contracter-in preparation). Reaction Network Modeling of Complex Adaptive Systems: A Roadmap From Autopoiesis to Collective Intelligence. Springer Nature.

36. Veloz, T., Hegele, S., & Maldonado, P. (2023, July). A Markovian framework to study the evolution of complexity and resilience in chemical organizations. In ALIFE 2023: Ghost in the Machine: Proceedings of the 2023 Artificial Life Conference. MIT Press.

37. Videla, R., & Veloz, T. (2023). The 4E Approach Applied to Education in the 21st Century. Constructivist Foundations, 18(2), 153-157.

38. Veloz, T., Heylighen, F. & Witkowski, O. (2023) Preface of special issue: ”Complexity and Evolution”, Entropy 2023, 25(2), 286; doi:10.3390/e25020286

39. Veloz, T. & Ramirez, C. (2022). The complex and systemic establishment of interactions in the ecological communities. REVISTA DE MODELAMIENTO MATEMÁTICO DE SISTEMAS BIOLÓGICOS - MMSB, VOL. 2, No. 3, diciembre 2022, ISSN 2735-6817.

40. Aerts, D., de Bianchi, M. S., Sozzo, S., & Veloz, T. (2021). Preface of the Special Issue: International Symposium “Worlds of Entanglement” - Second Part. Foundations of Science, 1-4.

41. Veloz, T. et al. (2020) On the interplay between mobility and hospitalization capacity during the COVID-19 pandemic: The SEIRHUD model. DOI: 10.1101/2020.06.10.20127613

42. Aerts, D., de Bianchi, M. S., Sozzo, S., & Veloz, T. (2019). Preface of the Special Issue International Symposium “Worlds of Entanglement”. Foundations of Science, 1-4.

43. Veloz T, Molina M, Valdenegro C, Elgueta L. (2018) La fenomenología de la desigualdad social requiere una ciencia interdisciplinaria y enactiva. El Desafío de una Sociedad más Horizontal y Menos Desigual. Editorial Universitas Nueva Civilización. Santiago, Chile.

44. Veloz, T., Bassi, A., Maldonado, P., & Razeto, P. (2018, December). On the Existence of Synergies and the Separability of Closed Reaction Networks. In International Symposium on Molecular Logic and Computational Synthetic Biology (pp. 105-120). Springer, Cham.

45. Veloz, T., Razeto, P., Quantum Cognitive Modeling of Concepts: An Introduction (2018). In *Probing the Meaning of Quantum Mechanics: Information, Contextuality, Relationalism and Entanglement. Proceedings of the II International Workshop on Quantum Mechanics and Quantum Information. Physical, Philosophical and Logical Approaches*. World Scientific.

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