Curriculum Vitae

Pablo Alejandro Barrionuevo

(August, 2024)

FB04 Psychologie, Philipps Universität Marburg. Gutenbergstraße 18, 35032 Marburg, Germany.

Instituto de Investigación en Luz, Ambiente y Visión (ILAV), Universidad Nacional de Tucumán (UNT) - National Scientific and Technical Research Council (CONICET). Av. Independencia 1800, San Miguel de Tucumán (T4002BLR), Tucumán, Argentina.

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Lab webpage: https://vnl.ar

Education

2012 - 2015	Postdoctoral training. "Photoreceptor Interaction in Human Vision" University of Illinois at Chicago, USA, Department of Ophthalmology and Visual Sciences. Advisor: Dingcai Cao
2007 - 2012	Ph.D. in Visual Environment and Efficient Lighting. Universidad Nacional de Tucumán (UNT), Argentina. Dissertation: "Computational Model of Lightness Constancy". Advisors: Luis Issolio and Elisa Colombo.
2006 - 2009	M.Sc. in Lighting: UNT, Argentina. Thesis: "Development of a System to Measure Glare Effects". Advisor: Luis Issolio.
2006	Specialist in Visual Environment and Efficient Lighting: UNT, Argentina.
2005	B. Sc. in Electronic Engineering: UNT, Argentina.

Positions and work experience

2024 -	Visiting Researcher. Philipps University Marburg, Germany.
2022 - 2024	Visiting Researcher. Justus Liebig University Giessen, Germany. 2 years.
2019 -	Associate researcher. CONICET, Argentina.
2016 - 2019	Assistant researcher. CONICET, Argentina.
2019	Visiting Researcher. Departamento de Física Teórica, Atómica y Óptica, Universidad de Valladolid (UVa), Spain. 2 months.
2018	Visiting Researcher. Department of Ophthalmology and Visual Sciences, University of Illinois at Chicago (UIC), USA. 3 months.
2015	Repatriation Postdoctoral Fellow. CONCET, Argentina.
2012 - 2015	Postdoctoral Fellow, Department of Ophthalmology and Visual Sciences, UIC, USA.
2006 - 2012	Graduate Student, Departamento de Luminotecnia, Luz y Visión (DLLyV), UNT, Argentina.
2008	Researcher in training, Centre for Sensors, Instruments and Systems Development, Polytechnic University of Catalunya, Spain.
2007	Researcher in training, Institute of Psychology, University of São Paulo, Brazil.

Awards and distinctions

2024	Invitation to participate as speaker in the Vision Science Society satellite event: "A Multispectral Projector for Advanced Vision Science", St Pete Beach, USA.
2023	Travel grant and invitation to participate as expositor in the Rank Symposium: "Melanopsin-mediated responses to light", Grasmere, UK.
2014	Travel grant and invitation to participate as expositor in the Symposium: "Non visual opsins" in the 16th International Congress of Photobiology.
2013	International Color Vision Society Travel Grant.
2011	International Color Vision Society Travel Grant.

2010 European Conference on Visual Perception (ECVP) Travel Fellowship.

2010 IInd Ibero-American Road Safety Congress: Third Prize. Technical paper: "Hacia una normalización en el uso de vidrios oscurecidos (Toward a normalization in the use of tinted windows)".

2007 ARVO Nicolas Bazán Travel Grant.

Current Research Grants

2024 – 2027 "Functional vision and lighting in the human habitat", PICT 2022-0087. Agencia I+D+i (Argentina), PI: Luis Issolio, Co-PI: Pablo Barrionuevo. ARS 9,000,000.

2023 – 2026 "Repercusión del deslumbramiento de la tecnología led de uso comercial, sobre las prestaciones visuales de sujetos con distinta transmitancia ocular en condiciones mesópicas", PID2022-138498OB-I00. Ministerio de Ciencia e Innovación (Spain), PIs: Beatriz Matesanz, Isabel Arranz. EUR 36,250.

2022 – 2025 "Color Vision and Codification" PIP 0949. CONICET (Argentina), PI: Andres Martin, Co-PI: Pablo Barrionuevo. ARS 1,080,000.

2022 – 2024 "Beyond Cone Vision: Rods and Melanopsin Role in Brightness Induction" PIBAA 1234. CONICET, PI: Pablo Barrionuevo. ARS 300,000.

2021 – 2024 "Melanopsin contribution to human vision" PICT 2019-03673. Agencia I+D+i, PI: Pablo Barrionuevo. ARS 1,012,500.

Research Fellowships

2018 Short stay fellowship. Fulbright Commission and CONICET.

2015 Repatriation Postdoctoral Fellowship. CONICET, Argentina.

2012 - 2013 IBRO John G. Nicholls Research Fellowship.

2007 - 2012 Doctoral Fellowship. CONICET, Argentina.

2006 - 2007 Initiation Fellowship. National Agency for Science and Technology Promotion (ANPCyT), Argentina.

Publications

1. C. Tripolone, L. Issolio, D. Perez, **P. Barrionuevo***. Contrast sensitivity is impaired in suspected primary open angle glaucoma patients. *medRxiv*, 2024; 24304979.
2. **P. Barrionuevo*,** M. Sandoval, J. Fanchini. "Are ipRGCs involved in human color vision? Hints from physiology, psychophysics, and natural image statistics". *Vision Research*, 2024; 217: 108378.
3. C. Tripolone, L. Issolio, C. Agüero, A. Lavaque, **P. Barrionuevo*.** "Pupilometría cromática en pacientes con sospecha de glaucoma primario de ángulo abierto". *Oftalmología Clínica y Experimental*, 2023; 16(4): e346-e356.
4. O. Preciado, M. Sandoval, L. Issolio, **P. Barrionuevo***. "Systems for selective stimulation of retinal pathways". *Optica Pura y Aplicada*. 2023; 56(2): 51150.
5. **P. Barrionuevo***, L. Issolio, C. Tripolone. "Photoreceptor contributions to the human pupil light reflex". J. Photochem. Photobiol. 2023; 15: 100178.
6. **P. Barrionuevo***, O. Preciado, M. Sandoval, L. Issolio. "Using optical stimulators to study the human visual system". *Progress in Brain Research.* 2022; 273: 13-32.
7. Cormenzana, B. O'Donell, A. Martin, D. Cao, **P. Barrionuevo***. "The intrusion of rods in luminance and chromatic pathways". *J Opt Soc Am A* 2022; 39(10): 1782-1793.
8. C. Tripolone, L. Issolio, C. Agüero, A. Lavaque, D. Cao, P. **Barrionuevo*.** Comparing flickering and pulsed pupil light responses. *J Opt Soc Am A* 2022; 39(8): 1505-1512.
9. **P. Barrionuevo*,** C. Paz Filgueira, D. Cao. Is Melanopsin Activation Affecting Large Field Color Matching Functions? *J Opt Soc Am A* 2022; 39(6): 1104-1110.
10. EG Vicente, I Arranz, D Galarreta, **PA Barrionuevo**, M Rodriguez-Rosa, S Mar, J Aparicio, B Matesanz. Effect of different spectral power distributions on mesopic visual performance with blue light-filtering intraocular lens. *Leukos* 2021; 17(1): 59 – 74.
11. **PA Barrionuevo*.** D. Cao. Does melanopsin help to explain color constancy in natural environments? *Proceedings of the International Color Association (AIC) Conference 2019*: 598–605.
12. FI Karas, A Arteaga, **PA Barrionuevo**, D Cao, JJ McAnany, E Shorter, MS Cortina. Intraocular Light Scatter in Eyes with Boston Type 1 Keratoprosthesis. *Cornea*. 2019; 38(1): 50-53.

13. **PA Barrionuevo***, LLMcAnany, AJ Zele, D Cao. Nonlinearities in the rod and cone photoreceptor inputs to the afferent pupil light response. *Frontiers in Neurology* 2018; 9.
14. C. Tripolone, L. Issolio, B. Silva, C. Paz Filgueira, D. Perez, **P. Barrionuevo***. Contrast sensitivity in early glaucoma patients: Effects of light level and eccentricity. *Anales AFA*. 2018; Especial issue inVisionT: 62-66.
15. O. Preciado, L. Issolio, E. Manzano, E. Colombo, **P. Barrionuevo***. Melanopsin excitation in conditions of natural and artificial lighting. *Anales AFA.* 2018; Especial issue inVisionT, 25-30.
16. **PA Barrionuevo***, B Matesanz, A Gloriani, I Arranz, LA Issolio, S Mar, J Aparicio. Effect of eccentricity and light level on the timing of light adaptation mechanisms, *J Opt Soc Am A* 2018; 35(4): B144-B151.
17. C. Feitosa-Santana, M. Lutze, **PA Barrionuevo**, D. Cao. Assessment of #TheDress with Traditional Color Vision Tests: Perception differences are associated with "blueness" *i-Perception* 2018; 9(2).
18. **PA Barionuevo**, D Cao. Luminance and chromatic signals interact differently with melanopsin activation to control flicker pupillary response, *Journal of Vision* 2016; 16(11):29, 1-17.
19. A Gloriani, B Matesanz, **PA Barrionuevo**, I Arranz, LA Issolio, S Mar, J Aparicio. Effect of light level, stimuli size and eccentricity in visual adaptation mechanisms, *Vision Research* 2016 125: 12-22.
20. J. Santillán, A. Martín, **PA Barrionuevo** M.E. Nano, and V. Lansingh. Darkened glasses in motor vehicles: standardization and ophthalmologic information. *Oftalmología Clínica y Experimental*. 2016; 9(4):170–177.
21. D Cao, **PA Barrionuevo**. The Importance of intrinsically photosensitive retinal ganglion cells and implications for lighting design, *Journal of Solid State Lighting.* 2015 2(1):1:8.
22. D Cao, **PA Barrionuevo**. The Importance of Melanopsin Activation in Perception, Health, and Lighting Design, *SID Digest.* 2015.
23. D Cao, N. Nicandro, **PA Barrionuevo**. A five-Primary photostimulator suitable for studying intrinsically photosensitive retinal ganglion cell functions in humans, *Journal of Vision.* 2015,15(1), 27.
24. D Cao, **PA Barrionuevo**. Estimating photoreceptor excitations from spectral outputs of a personal light exposure measurement device, *Chronobiol Int.* 2014:1-11.
25. **PA Barrionuevo**, D Cao. Contributions of rhodopsin, cone opsins, and melanopsin to postreceptoral pathways inferred from natural image statistics. *J Opt Soc Am A*. 2014;31(4):A131–A139.
26. **PA Barrionuevo**, N Nicandro, JJ McAnany, AJ Zele, P Gamlin, D Cao. Assessing Rod, Cone and Melanopsin Contributions to Human Pupil Flicker Responses. *Invest Ophthalmol Vis Sci*. 2014;55(2):719-727.
27. **PA Barrionuevo***, EM Colombo, LA Issolio. Retinal mesopic adaptation model for brightness perception under transient glare. *J Opt Soc Am A*. 2013;30(6):1236–1247.
28. LA Issolio, **PA Barrionuevo**, SA Comastri, EM Colombo. Veiling luminance as a descriptor of brightness reduction caused by transient glare. *J Opt Soc Am A Opt Image Sci Vis*. 2012;29(10):2230–2236.
29. **PA Barrionuevo***, EM Colombo, M Vilaseca, J Pujol, LA Issolio. Comparison between an objective and a psychophysical method for the evaluation of intraocular light scattering. *J Opt Soc Am A*. 2012;29(7):1293–1299.
30. **PA Barrionuevo***, EM Colombo, D Corregidor, M Jaen, LA Issolio. Evaluation of the intraocular scattering through brightness reduction by glare using external diffusers to simulate cataracts. *Optica Applicata*. 2010;40(1):63–75.
31. LA Issolio, J Matranga, **PA Barrionuevo**, SA Comastri, G Martin, EM Colombo. Brightness reduction as a function of the angular position of a glare source. *Optica Pura y Aplicada*. 2009;42(1):33–39.
32. A Martin, JE Santillán, **PA Barrionuevo**. Automobile tinted films and its effects on the driver functional vision. *Oftalmología Clínica y Experimental*. 2009; 3(2):69–72.

**Participation as Corresponding Author*

Datasets

1. Gutierrez, B. Silva, J. Fanchini, T. Morimoto, **P. Barrionuevo**, M. Sandoval Salinas (2024). “Spectral datase of natural objects’ reflectance in the Southern cone of South America”. [dataset]. Figshare. https://doi.org/10.6084/m9.figshare.25705380

Meeting Abstracts (last 5 years)

1. **P. Barrionuevo**, A. Gutierrez, B. Silva, J. Fanchini, T. Morimoto, M. Sandoval Salinas. “Spectral measurements of natural objects in the southern cone of South America”. ICVS 2024. Ljubljana – Slovenia.

2. J. Fanchini, M. Sandoval Salinas, **P. Barrionuevo**. “Designing and developing a portable five-primary photostimulator for investigating melanopsin's role in color vision, tailored for rural environments”. ICVS 2024. Ljubljana – Slovenia.
3. B. Matesanz, E. Vicente, **P. Barrionuevo**, I. Arranz. “The influence of glare generated by an LED lamp on pupillary behaviour: Considerations about colour temperature”. ICVS 2024. Ljubljana – Slovenia.
4. A. Gutierrez, B. Silva, **P. Barrionuevo**, J. Fanchini, T. Morimoto, M. Sandoval Salinas. “Mediciones espectrales de objetos naturales en el norte de Argentina” ArgenColor 2024. Córdoba – Argentina.
5. **P. Barrionuevo**, F. Diaz Barrancas. “Image statistics of melanopsin-mediated signals” VSS 2024. St. Pete Beach – USA. Poster
6. E. Vicente, B Matesanz, **P. Barrionuevo,** I.Arranz. “Influencia de la temperatura de color correlacionada de la fuente deslumbrante en el comportamiento pupilar”. OPTOM 2024. Madrid – Spain.
7. J. Fanchini, M. Sandoval Salinas, **P. Barrionuevo**. “Desarrollo de un fotoestimulador portatil de cinco primarios para evaluar la adaptación visual al color”. AIVO 2023. Córdoba – Argentina.
8. C. Tripolone, L. Issolio, **P. Barrionuevo**. “Relación entre pupilometría cromática parpadeante con parámetros retinianos funcionales y estructurales en pacientes con sospecha de glaucoma primario de ángulo abierto”. AIVO 2023. Córdoba – Argentina.
9. **P. Barrionuevo**. “Melanopsin contrasts in the wild” Rank Prize Symposium: Melanopsin-mediated responses to light. 2023. Grasmere – UK. Talk
10. **P. Barrionuevo**, A. Schütz, K. Gegenfurtner. “The role of rod and cone signals in mesopic brightness induction” ECVP 2023. Paphos – Cyprus. Talk
11. **P. Barrionuevo**, A. Schütz, K. Gegenfurtner. “The effect of isolated photoreception in mesopic brightness induction” VSS 2023. St. Pete Beach – USA. Poster
12. J. Fanchini, A. Gutierrez, B. Silva, M. Sandoval Salinas, **P. Barrionuevo**. “Comparación de parámetros de dos cámaras DSLR para la obtención de características colorimétricas de una escena visual” ArgenColor 2022. San Miguel de Tucuman – Argentina.
13. **P. Barrionuevo**, María Leonor Sandoval, D. Cao. “Testing Melanopsin and Rod Intrusion in Large-Field Cone Fundamentals: A Statistical Approach”. ICVS 2022. Heraklion – Greece. Talk
14. C. Tripolone, L. Issolio, C. Agüero, A. Lavaque, D. Perez, **P. Barrionuevo**. “Assessment of flickering chromatic pupillometry in patients with risk of glaucoma. ARVO 2022. Denver-EEUU.
15. C. Tripolone, L. Issolio, C. Agüero, A. Lavaque, **P. Barrionuevo**. “Relationship between two stimulation techniques of chromatic pupillometry”. Taller inVisionT 2021. Virtual.
16. C. Tripolone, L. Issolio, C. Agüero, A. Lavaque, **P. Barrionuevo**. “Evaluación de la concordancia entre dos técnicas de pupilometría cromática en el régimen temporal”. Reunión AIVO 2021. Virtual.
17. **P. Barrionuevo**. “Pupilometría cromática: una nueva herramienta para detectar enfermedades de la retina”. Congreso Anual de la Sociedad Argentina de Oftalmología (SAO 100+1). Virtual. Talk
18. **P. Barrionuevo**, I. Cormenzana, A. Martin, Dingcai Cao, B. O’Donell. “Different temporal integration of rod signals in luminance and chromatic pathways”. ECVP 2021. Virtual. Talk.
19. B. Matesanz, E. Vicente, **P. Barrionuevo**, S. Mar, I. Arranz. “LED illuminants: Effect of correlated color temperature on pupil size in off-axis vision”. ECVP 2021. Virtual.
20. C. Tripolone, C. Agüero, A. Lavaque, L. Issolio, **P. Barrionuevo**. “Chromatic Pupillometry: Validation of Flickering Parameters from Pulse Parameters”. Oftalmocórdoba 2020. Córdoba – Argentina.
21. C. Tripolone, C. Agüero, A. Lavaque, L. Issolio, **P. Barrionuevo**. “Towards a normative database of the flickering chromatic pupillometry”. inVisionT 2019. Horco Molle – Argentina.
22. I. Cormenzana, B. O’Donell, A. Martin, **P. Barrionuevo**. “Reaction Times of the Interaction of Rods with the Parvocellular Pathway”. inVisionT 2019. Horco Molle – Argentina.
23. C. Tripolone, P. Romano, L. Issolio, **P. Barrionuevo**. “Desarrollo de un sistema portátil para medir el tamaño pupilar bajo estimulación monocromática dinámica”. ECIFACET 2019. San Miguel de Tucumán – Argentina.
24. **P. Barrionuevo,** D. Cao. “Does melanopsin help to explain color constancy in natural environments?”. AIC 2019. Buenos Aires – Argentina. Poster.
25. **P. Barrionuevo,** D. Cao. “The Role of Melanopsin Activation in Peripheral Color Matching Functions”. ICVS 2019. Riga – Letonia. Poster.

Reviewer Volunteering

Indexed Journals: *Journal of the Optical Society of America A (7), Journal of Vision (2), Investigative Ophthalmology and Visual Science (2), Optics Express (2), Plos One (2), Scientific Reports (1), Frontiers in Neurology (1), Frontiers in Neuroscience (1), Anales AFA (1)*, *Current Eye Research (1), Journal of Imaging Science and Technology (1), Proceedings of the Royal Society B (1), Perception (1), Applied Optics (1).*

2024 Specialist revision for admission to research career in CONICET.
2023 Specialist revision for admission to research career in CONICET.
2023 Peer reviewer grant proposal Agencia I+D+i.
2021 Peer reviewer grant proposal Agencia I+D+i.
2016 Member of the scientific committee of the GRAFOB III meeting “GRAFOB del Bicentenario”.
2015 Faculty judge at UIC Student Research Forum.

Teaching Experience

2020 Seminar Series: “Chromatic Pupillometry”. 40Hs. UNT.
2019 Course: “Brightness Matching and Silent Substitution”. 20Hs. UVa, Spain.
2017 Class at the course “Horizons in Vision Sciences”. 20Hs. UNT
2008 - 2011 Teaching Assistant *ad honorem* to Dr. Luis Issolio in "Electronics". ILAV - UNT.

Supervision and Advisor Experience

2023 - 2026 Constanza Tripolone, CONICET, postdoctoral fellow. Role: Advisor.
2022 - 2027 José Fanchini, UNT – CONICET, doctoral student. Role: Advisor.
2018 - 2024 Agustín Decima, UNT, doctoral student. Role: Supervision committee member.
2018 - 2025 Iñaki Cormenzana Mendez, UNT, doctoral student. Role: Supervision committee member.
2020 - 2023 María Leonor Sandoval, CONICET, assistant researcher. Role: Advisor.
2019 - 2023 Constanza Tripolone, UNT, doctoral student. Role: Advisor.
2014 - 2017 Alejandro Gloriani, UVa. doctoral student. Role: Advisor.
2023 - 2024 Agustin Gutierrez, UNT, undergraduate student. Role: Co-advisor of internship.
2017 Pablo Romano, UNT, undergraduate student. Role: Advisor.
2010 Diego Lagoria. ILAV, undergraduate student. Role: Advisor of internship.
2010 Rubén Fontana. ILAV, undergraduate student. Role: Advisor of internship.
2021 “Universidad Nacional de Tucuman Student Chapter”. OPTICA. Student Organization. Role: Advisor.

Additional Information

Leadership

2023 Organizer of the Symposium “Vision beyond cones: Uncovering the role of rods and melanopsin in perception” during the European Conference on Visual Perception held at Paphos, Cyprus.
2019 President of the organizing committee of the Second Latin American workshop on Vision Sciences “inVisionT 2019” held at Horco Molle, Argentina.
2017 President of the organizing committee of the First Latin American workshop on Vision Sciences “inVisionT 2017” held at San Miguel de Tucumán, Argentina.
2016 Founding member of the scientific organization “Ateneo Cientificxs Tucumxs”
2011 President and founding member of the "Universidad Nacional de Tucumán student chapter". OPTICA (ex OSA).

Participation in committees

2024 - 2026 Treasurer. Argentine Association for Investigation in Vision and Ophthalmology (AIVO).
2022 - 2024 International Affairs Secretary. Argentine Association for Investigation in Vision and Ophthalmology (AIVO).
2023 Member of the organizing committee of the XIV National Congress of Research in Vision and Ophthalmology AIVO 2023” Cordoba - Argentina.
2021 Member of the organizing committee of the Third Latin American workshop on Vision Sciences “inVisionT 2021” Virtual.

2021 Member of the organizing committee of the XIII National Congress of Research in Vision and Ophthalmology AIVO 2021" Virtual.

2020 - 2022 Board member. Argentine Association for Investigation in Vision and Ophthalmology (AIVO).

Science dissemination

2022 Light and Color Phenomena. Participation in the Instagram campaign of the Ministry of Science, Technology and Innovation of Argentina.

2017 - 2019 Co-Organizer of the Science and Music Festival "Voces por la Ciencia (Voices for science)". Tucumán - Argentina.

2011 - 2012 Member of the university outreach program: "Ciencia para todos (Science for everybody)", Tucumán-Argentina.

Participation in innovation contests

2022 INNOVAR (Innovation Contest of Argentina). Category: Applied Research, product: "Pupilcrom: device to detect retinopathies"

2011 INNOVAR. Category: Applied Research, product: "Espectran: spectral transmittance meter for automobile glass".

Politics of science contributions

2024 "¿Es factible desarrollar tecnología en un centro académico de Argentina? Un acercamiento desde la percepción de sus integrantes (Is it possible to develop technology in an argentinian academic center? An approach from their staff perception)". Manuscript in preparation.

2017 Welcome speech in the ceremony to receive new members of CONICET Tucumán. https://www.facet.unt.edu.ar/luminotecnia/2017/06/14/discurso-del-dr-pablo-barrionuevo/

2016 Co-Organizer of the CONICET Tucumán seminar: "Aportes y desafíos de la ciencia regional de cara al tricentenario (Contributions and Challengues of the Local Science towards the Tricentennial)".

Career breaks

2020 - 2021 Lock down and restriction of activities due to COVID19 pandemic (20 months).

Current Professional Memberships

OPTICA. Vision Science Society, International Color Vision Society, Argentine Association for Investigation in Vision and Ophthalmology.

Languages

Spanish (Native), English (Advanced), Portuguese (Intermediate), German (Initial), and French (Initial).