

Juan F. Tabernero, PhD

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Education

■ PhD Physics (Optics), Universidad de Murcia 2007

Thesis: Study of the sources of aberrations in the human eye. Applications in the design of Intraocular lenses.

PhD Supervisor: Prof. Pablo Artal

■ MSc Physics, Universidad de Salamanca 2002

Current Position

■ "Juan de la Cierva" associate researcher (funded by the Spanish Ministry of Science) (2011-)

Laboratorio de Óptica. University of Murcia (Spain)

Research Lines: Physiological Optics. Lens design. Instrumentation design. Myopia.

PAST POSITIONS: "Marie Curie" post-doctoral researcher . Section of Neurobiology of the Eye Institute for Ophthalmic Research, University of Tübingen, Germany. (2008-2010)

Peer Reviewed Publications

1. P. Artal, A. Benito, **J. Tabernero**. "The human eye is an example of robust optical design", J. Vis., 6(1), 1-7 (2006).
2. **J. Tabernero**, A. Benito, V. Nourrit, P. Artal. "Instrument for measuring the misalignments of ocular surfaces", Opt. Exp. 14, 10945-10956 (2006).
3. **J. Tabernero**, P. Piers, A. Benito, M. Redondo, P. Artal. "Predicting the Optical Performance of Eyes Implanted with IOLs to Correct Spherical Aberration", Invest. Ophthalmol. Vis. Sci., 47, 4651-4658 (2006).

4. A. Benito, **J. Tabernero**, P. Artal. "Compensación de aberraciones en el ojo humano", *Ver y Oír*, 226-228, May (2006).
5. **J. Tabernero**, P. Artal. "Surface reflections reveal hidden eye misalignments", *Laser Focus World*, 43, 6, June (2007).
6. **J. Tabernero**, P. Piers, P. Artal. "Intraocular lens to correct corneal coma" *Opt. Lett.*, 32, 406-408 (2007).
7. **J. Tabernero**, A. Benito, E. Alcón, P. Artal. "The mechanism of compensation of aberrations in the human eye", *J. Opt. Soc. Am. A*, 24, 3274-3283 (2007).
8. **J. Tabernero**, S. Klyce, E. Sarver, P. Artal. "The Functional Optical Zone of the Cornea", *Invest. Ophthalmol. Vis. Sci.*, 48, 1053-1060 (2007).
9. L. Fransen, **J. Tabernero**, J. Copeens, T. Van Den Berg. "Pupil size and retinal straylight in the normal eye", *Invest. Ophthalmol. Vis. Sci.*, 48, 2375-2382 (2007).
10. P. Artal, **J. Tabernero**. "The eye's aplanatic answer", *Nature Photonics*, 2, 586-589 (2008).
11. **J. Tabernero**, D. Atchison, E. Markwell. "Aberrations and pupil location under corneal topography and Hartmann-Shack illumination conditions" *Invest. Ophthalmol. Vis. Sci.*, 50, 1964-1970 (2009).
12. **J. Tabernero**, F. Schaeffel. "More irregular eye shape in low myopia than in emmetropia" *Invest. Ophthalmol. Vis. Sci.*, 50, 4516-4522 (2009).
13. **J. Tabernero**, D. Vazquez, A. Seidemann, D. Uttenweiler, F. Schaeffel. "Effects of myopic spectacle correction and radial refractive gradient spectacles on peripheral refraction" *Vis. Res.*, 49, 2176-2186 (2009).
14. **J. Tabernero**, F. Schaeffel. "Fast scanning photoretinoscope for measuring peripheral refraction as a function of accommodation" *J. Opt. Soc. Am. A*, 26, 2206-2210 (2009).
15. P. Artal, **J. Tabernero**. "Optics of human eye: 400 years of exploration from Galileo's time", *Appl. Opt.*, 49, 123-130 (2010).
16. Y. Nishi, N. Hirnschall, A. Crnej, V. Gangwani, **J. Tabernero**, P. Artal, O. Findl, "Reproducibility of intraocular lens decentration and tilt measurement using a clinical Purkinje meter", *J. Cataract Refract. Surg.*, 36, 1529-1535 (2010).
17. E. Berrio, **J. Tabernero**, P. Artal, "Optical aberrations and alignment of the eye with age ", *J. Vis.* 10 (14):34, 1-17 (2010).
18. **J. Tabernero**, A. Ohlendorf, M. D. Fischer, A. R. Bruckmann, U. Schiefer, F. Schaeffel. "Peripheral Refraction Profiles in Subjects with Low Foveal Refractive Errors", *Opt. Vis. Sci.*, 88, 388-394 (2011).
19. A. Ohlendorf, **J. Tabernero**, F. Schaeffel. "Neuronal adaptation to simulated and optically-induced astigmatic defocus", *Vis. Res.*, 51, 529-534 (2011).

20. **J. Tabernero**, C. Schwarz, E. J. Fernández, P. Artal. "Binocular visual simulation of a corneal inlay to increase depth of focus ", Invest. Ophthalmol. Vis. Sci., 52, 5273-5277 (2011).
21. A. Ohlendorf, **J. Tabernero**, F. Schaeffel. "Visual Acuity with Simulated and Real Astigmatic Defocus", Opt. Vis. Sci., 88, 562-569 (2011).
22. **J. Tabernero**, E. Berrio, P. Artal. "Modeling the mechanism of compensation of aberrations in the human eye for accommodation and aging", J. Opt. Soc. Am. A, 28, 1889-1895 (2011).
23. A. Crnej, N. Hirnschall, Y. Nishi, V. Gangwani, **J. Tabernero**, P. Artal, O. Findl. "Impact of intraocular lens haptic design and orientation on decentration and tilt", J. Cataract Refract. Surg., 37, 1768–1774 (2011).
24. **J. Tabernero**, P. Artal. "Optical modeling in real eyes of a corneal inlay to increase depth of focus: optimum centration and residual defocus". J. Cataract Refract. Surg., 38, 270-277 (2012).
25. B. Jaeken, **J. Tabernero**, F. Schaeffel, P. Artal. "Comparison of two scanning instruments to measure peripheral refraction in the human eye", J. Opt. Soc. Am. A, 29, 258-264 (2012).
26. **J. Tabernero**, A. Ohlendorf, M. D. Fischer, A. R. Bruckmann, U. Schiefer, F. Schaeffel. "Peripheral refraction in pseudophakic eyes measured by an infrared scanning photoretinoscope", Accepted for publication in J. Cataract Refract. Surg (2012).
27. A. Mathur, D. Atchison, **J. Tabernero**. "Effect of age on components of peripheral optical aberrations", Accepted for publication in Opt. Vis. Sci. (2012).

Publication Metrics (ISI web of knowledge)

Sum of the times cited : 315

Average citations per published paper : 10.50

Average citations per year (2004- 2012): 39.38

h-index : 9

Conference abstracts

- **J. Tabernero**, A. Benito, P. Piers, V. Nourrit, M. Redondo and P. Artal. "Effect of misalignments in IOLs correcting spherical aberration", II EOS Topical Meeting on Physiological Optics, Granada, Spain, 2004
- **J. Tabernero**, A. Benito, P. Piers, V. Nourrit, M. Redondo, P. Artal. "Aberrations Produced by misalignments of intraocular lenses in Pseudophakic eyes", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2004
- **J. Tabernero**, "How Robust to Misalignments are IOLs Correcting Spherical Aberration", 6th International Congress of Wavefront Sensing and Optimized Refractive Corrections, Athens, Greece, 2005
- **J. Tabernero**, A. Benito, P. Piers, M. Redondo, P. Artal. "Virtual Cataract Surgery: A Customized Model to Predict the Optical Performance of Eyes Implanted With IOLs", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2005
- P. A. Piers, **J. Tabernero**, A. Benito, M. Redondo, P. Artal, "Optical and Visual Performance Are Well Correlated in Pseudophakic Eyes", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2005
- **J. Tabernero**, P. Piers, P. Artal. "An Intraocular Lens Correcting Corneal Coma" Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2006
- S. D. Klyce, **J. Tabernero**, E. J. Sarver, P. Artal. "The Functional Optical Zone (FOZ) After Keratorefractive Surgery", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2006
- P. Artal, **J. Tabernero**, A. Benito. "Modeling The Mechanism Of Compensation Of aberrations In Real Eyes", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2006
- **J. Tabernero**, P. Piers, P. Artal. "Predicting Depth of Focus in Pseudophakic Eyes With Aspheric IOLs Using a Customized Polychromatic Modeling", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2007
- C. Canovas, **J. Tabernero**, P. Artal. "Optimized IOL Power Predicted by Customized Modelling", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2007
- **J. Tabernero**, P. Artal. "Modeling the Mechanism of Compensation of Aberrations for Accommodation and Age", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2008

- M. Bird, **J. Tabernero**, P. Artal, H.A. Weeber, P.A. Piers. "Simulated Eye Model Experiments for Selecting a Depth-of-Focus Metric" Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2008
- **J. Tabernero**, F. Schaeffel. "Effects of Myopic Spectacle Correction on the Human Peripheral Refractive State as Measured by Eccentric Photorefractometry" 12nd International Myopia Conference, Cairns, Australia, 2008. **(INVITED)**.
- **J. Tabernero**. "IOL to correct corneal coma. A new concept" 10th International Congress of Wavefront Sensing and Optimized Refractive Corrections, Alicante, Spain, 2009 **(INVITED)**.
- E. Berrio, **J. Tabernero**, P. Pérez, P. Artal. "Optical Alignment and Aberrations of Human Eyes as a Function of Age", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2009
- **J. Tabernero**, F. Schaeffel. "Continuous Peripheral Refraction Profiles Measured With a Scanning Infrared Photoretinoscope in Myopic and Emmetropic Students", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2009
- **J. Tabernero**. "Compensación de las aberraciones en el ojo humano. Inspiración para nuevos diseños de lentes Intraoculares" V Congreso Internacional de Oftalmología. Medellín, Colombia, 2009 **(INVITED)**.
- **J. Tabernero**, F. Schaeffel. "A new fast scanning infrared photoretinoscope to measure peripheral refraction as a function of accommodation", 93rd Annual meeting of the Optical Society of America, San Jose, USA, 2009.
- **J. Tabernero**, A. Ohlendorf, M.D. Fischer, U. Schiefer, F. Schaeffel. "Classification of Continuous Peripheral Refractive Profiles, Measured With a Scanning Infrared Photoretinoscope in an Adult Population", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2010.
- **J. Tabernero** "Peripheral refraction: new methods to measure fast and comfortably" 13th International Myopia Conference, Tübingen, Germany, 2010. **(INVITED)**.
- **J. Tabernero**, P. Artal. "Optical Modelling In Real Eyes Of A Corneal Small Aperture Inlay To Increase Depth Of Focus", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2011.
- C. Schwarz, **J. Tabernero**, E.J. Fernández, P. Artal. "Visual Simulation Of Binocular Depth Of Focus With A Corneal Small Aperture Inlay", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2011.
- **Juan Tabernero**, Nino Hirschsall, Sophie Tatzreiter, Oliver Findl, Pablo Artal. "Determining The Stability Of Implanted IOLs With A Dynamic Purkinje-meter System", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2012.
- Silvestre Manzanera, Christina Schwarz, Enrique J. Fernandez, **Juan Tabernero**, Pedro M. Prieto, Pablo Artal. "Comparison of Through Focus Binocular Visual Acuity with a Small Aperture and Monovision",

Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2012.

- Enrique J. Fernandez, Christina Schwarz, Pedro M. Prieto, Silvestre Manzanera, **Juan Tabernero**, Pablo Artal. "Stereoacuity with Monovision and Small Aperture Approaches to Correct for Presbyopia", Annual meeting of the association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2012.

- **J. Tabernero**, P. Artal. "Dynamic Purkinje-meter system to evaluate lens stability", 6th EOS Topical Meeting on Physiological Optics, Dublin, Ireland, 2012.

Conference session chair

- 13th International Myopia Conference, Tübingen, Germany, 2010. Co-chairman and co-organizer of the session "Off-axis optics and off axis error signals, local compensation of refractive errors"
- Annual meeting of the Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, 2012. Moderator of the session "Myopia II: Clinics"

Research Visits

- CENTER: Department of Ophthalmology. Louisiana State University. New Orleans (USA). 1 month. July 2005. TOPIC: Study of the Functional Optical Zone of the Cornea. Collaboration with Prof Steve Klyce
- CENTER: The Netherlands Ophthalmic Research Institute. Amsterdam (The Netherlands). 2 months. August-September 2005. TOPIC: Stray Light in the eye and the pupillary size. Collaboration with Prof Tom van den Berg
- CENTER: Institute of Health and Biomedical Innovation. Queensland University of Technology. Brisbane (Australia) 2 months. August-September 2006. TOPIC: Pupil size in Hartmann-Shack and corneal topography simultaneous measurements. Collaboration with Prof David Atchison

Patents

- INTRAOCULAR LENS FOR CORRECTING CORNEAL COMA

International Application No.: PCT/EP2006/010346

Publication Date: 03.05.2007

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Inventores: J. Tabernero, P. Artal, P. Piers

Fecha de prioridad: 11/260,013 26.10.2005 US

■ METHOD FOR THE IN VIVO MEASUREMENT OF THE ALIGNMENT OF THE
OPTICAL COMPONENTS OF THE EYE AND DEVICE FOR IMPLEMENTING SAME

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International Filing Date: 29.06.2007

Inventores: J. Tabernero, P. Artal

Fecha de prioridad: P 200601816 06.07.2006 ES

Teaching experience

- Course title: "Optics" 3rd year MSc Physics. University of Murcia. (Years 2005,2006,2007, 2011)
- Course title: "Physical Optics" 2nd year BSc Optometry. University of Murcia. (Years 2010 and 2011)