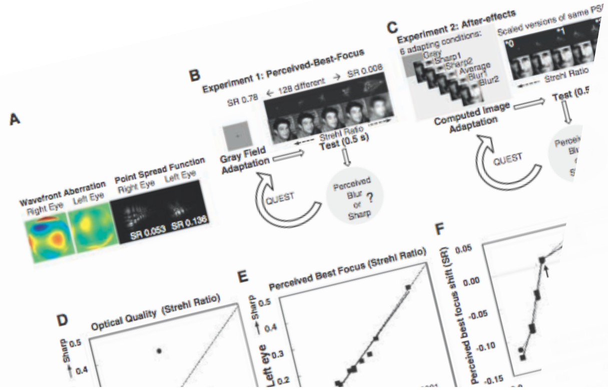
What did come out from VioBio in 2015?

VISUAL OPTICS & BIOPHOTONICS LAB



OCT-based crystalline lens topography in accommodating eyes

Pablo Pérez-Merino,* Miriam Velasco-Ocana, Eduardo Martinez-Enriquez, and Susana Marcos

Instituto de Óptica "Daza de Valdés," Consejo Superior de Investigaciones Científicas, C/Serrano 121, 28006 Madrid, Spain

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Abstract: Custom Spectral Domain Optical Coherence Tomography (SD-OCT) provided with automatic quantification and distortion correction algorithms was used to measure anterior and posterior crystalline lens surf... relationships betwe... measured...

Biomedical Optics EXP...

Correspondence

A cyclopean neural mechanism compensating for optical differences between the eyes

Aiswaryah Radhakrishna..., Carlos Dorronsoro[1], Lu..., Michael A. Webster[2], and Susana Marcos[1]

The two eyes of an in... routinely differ in thei... neural properties, ye... through either eye r... similar than predict... differences. How d... resolve this conflic... Differences in visi... the two eyes hav... extensively in th... binocular vision

Lens

Toward New Engagement Paradigms For Intraocu... Light-Initiated Bonding of Capsular Bag to Lens M...

Susana Marcos,[1] Nicolás Alejandre,[1,2] Jorge Lamela,[1] Carlos Dorronsoro,[1] and ...

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[2]Fundación Jiménez Díaz, Madrid, Spain
[3]Wellman Center for Photomedicine, Massachusetts General Hospital and Harvard Medical School, Boston, ...

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Submitted: April 10, 2015
Accepted: May 6, 2015

Citation: Marcos S, Alejandre N, Lamela J, Dorronsoro C, Kochevar IE. Toward new engagement paradigms for intraocular lenses: light-initiated bonding of capsular bag to lens materials. *Invest Ophthalmol Vis Sci.*

Purpose. Successful intraocular lens procedures, that is, impl... intraocular lenses (A-IOL), require firm engagement of the IOL ha... evaluated the use of photochemical bonding to engage IOL ma...

Methods. Freshly enucleated eyes of New Zealand rabbits ... photobonding experiments using Rose Bengal (RB) photoiniti... irradiation. First, RB-stained capsular bag strips were photob... [poly(2-hydroxyethyl methacrylate) pHEMA] strips in an atm... Second, IOLs were implanted intracapsularly and photobonde... were between 30 and 180 seconds, and laser irradiance was ... The strength of the bonding was tested using a custom-d... system and the breakage load (the load that caused breakage ...

Results. The breakage load of ex vivo capsule–pHEMA bonds increased ...

ARTICLE

In vivo subjective and objective longitudinal chromatic aberration after bilateral implantation of the same design of hydrophobic and hydrophilic intraocular lenses

Maria Vinas, MSc, Carlos Dorronsoro, PhD, Nuria Garzón, OD, MSc, Francisco Poyales, MD, Susana Marcos, PhD

PURPOSE: To measure the longitudinal chromatic aberration in vivo using psychophysical and wavefront-sensing methods in patients with bilateral implantation of monofocal intraocular lenses (IOLs) of similar aspheric design but different materials (hydrophobic Podeye and hydrophilic Poday).

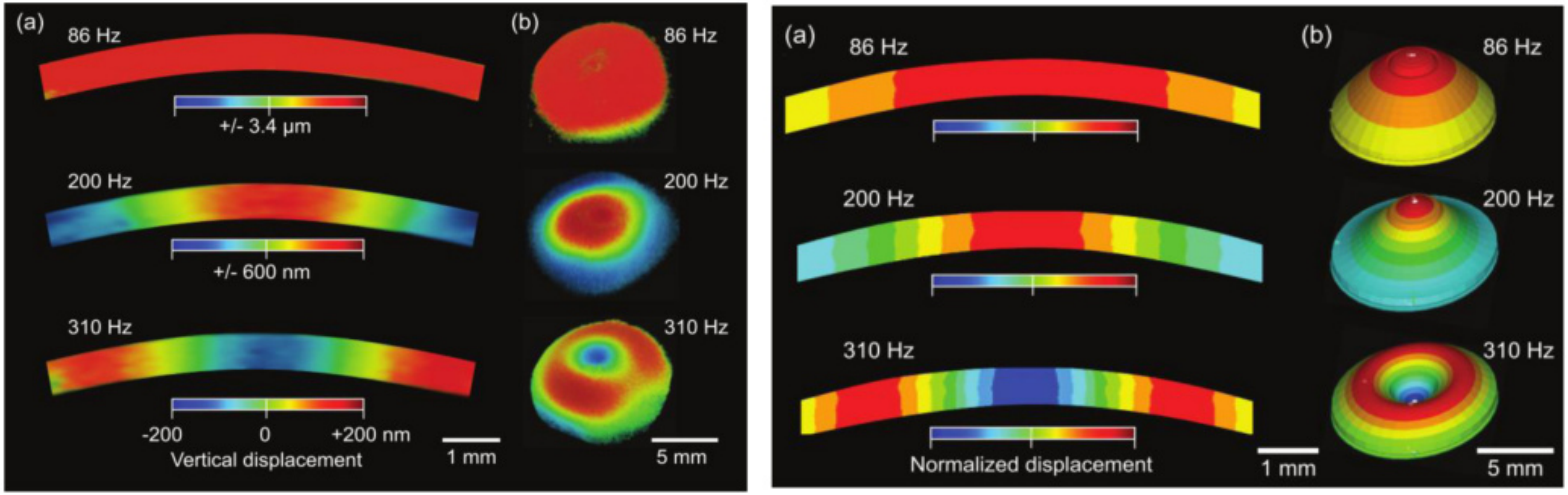
SETTING: Instituto de Optica, Consejo Superior de Investigaciones Cientificas, Madrid, Spain.

DESIGN: Prospective observational study.

METHODS: Measurements were performed with the use of psychophysical (480 to 700 nm) and ...

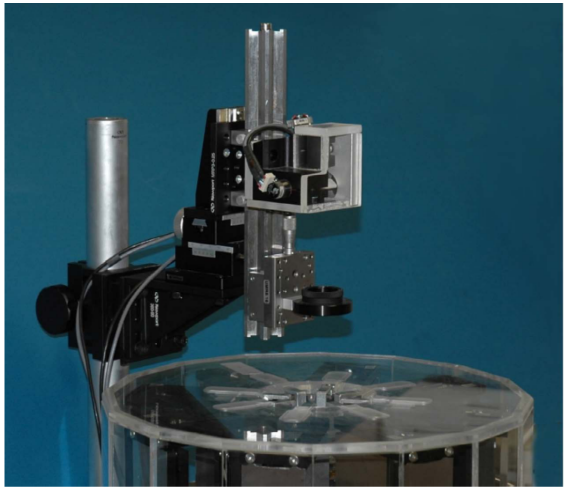
Corneal biomechanics from OCT vibrography

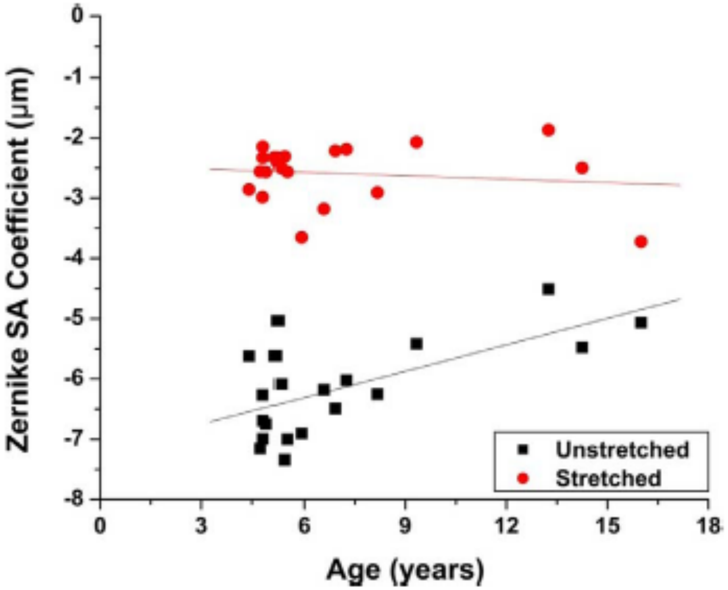
Experimental Simulated

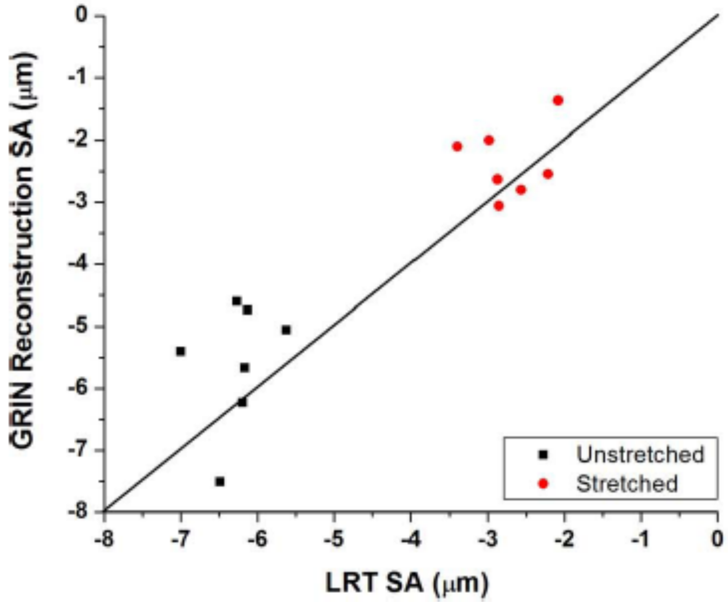


B. Imran Akca, Ernest W. Chang, Sabine Kling, Antoine Ramier, Giuliano Scarcelli, Susana Marcos, and Seok H. Yun, "Observation of sound-induced corneal vibrational modes by optical coherence tomography," **Biomed. Opt. Express** 6, 3313-3319 (2015)

Crystalline lens spherical aberration & accommodation

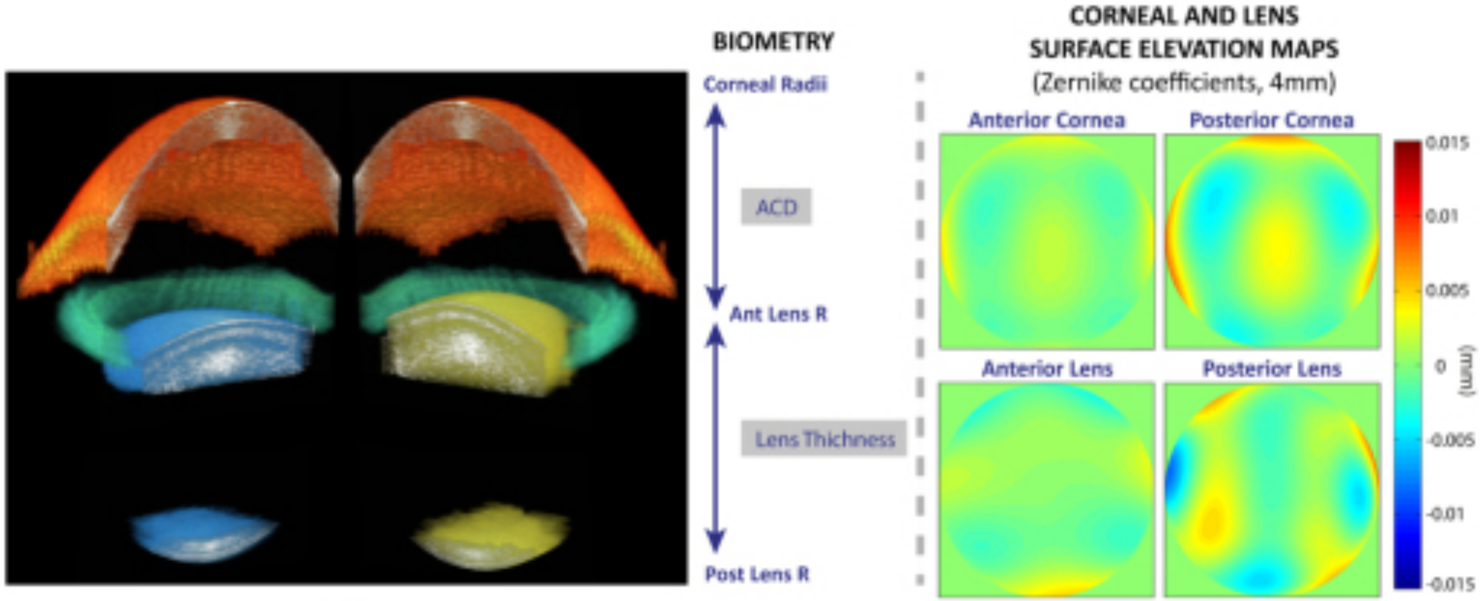






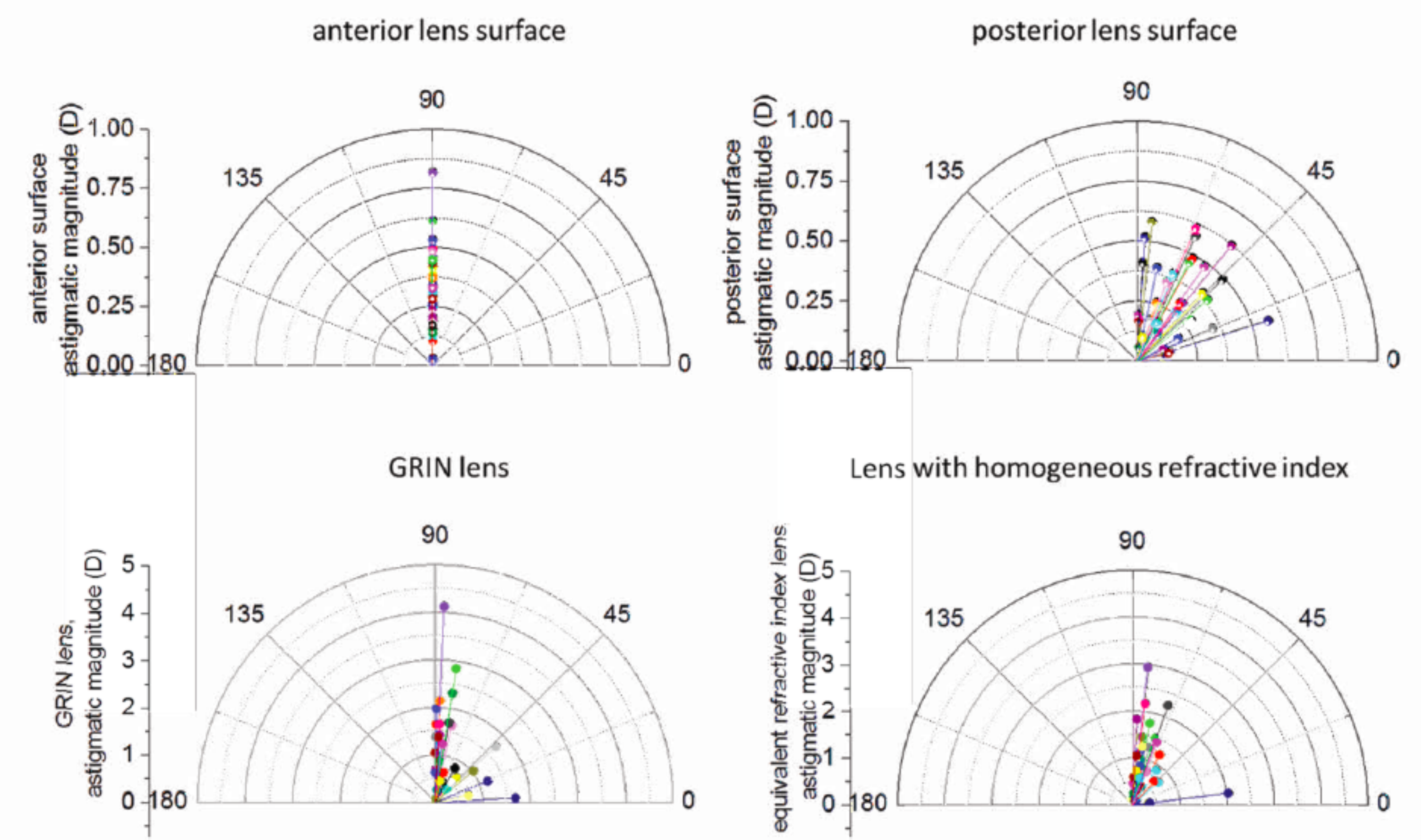
B. Maceo, F. Manns, A. de Castro, H. Durkee, E. Arrieta, S, Marcos, JM Parel. *Changes in monkey crystalline lens spherical aberration during simulated accommodation in a lens stretcher*, **IOVS (2015)**

In vivo Crystalline lens topography as a function of accommodation



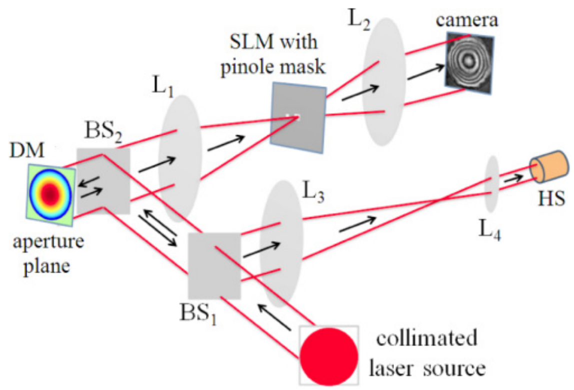
Pablo Pérez-Merino, Miriam Velasco-Ocana, Eduardo Martinez-Enriquez, and Susana Marcos, *OCT-based crystalline lens topography in accommodating eyes*," **Biomed. Opt. Express** 6, 5039-5054 (2015)

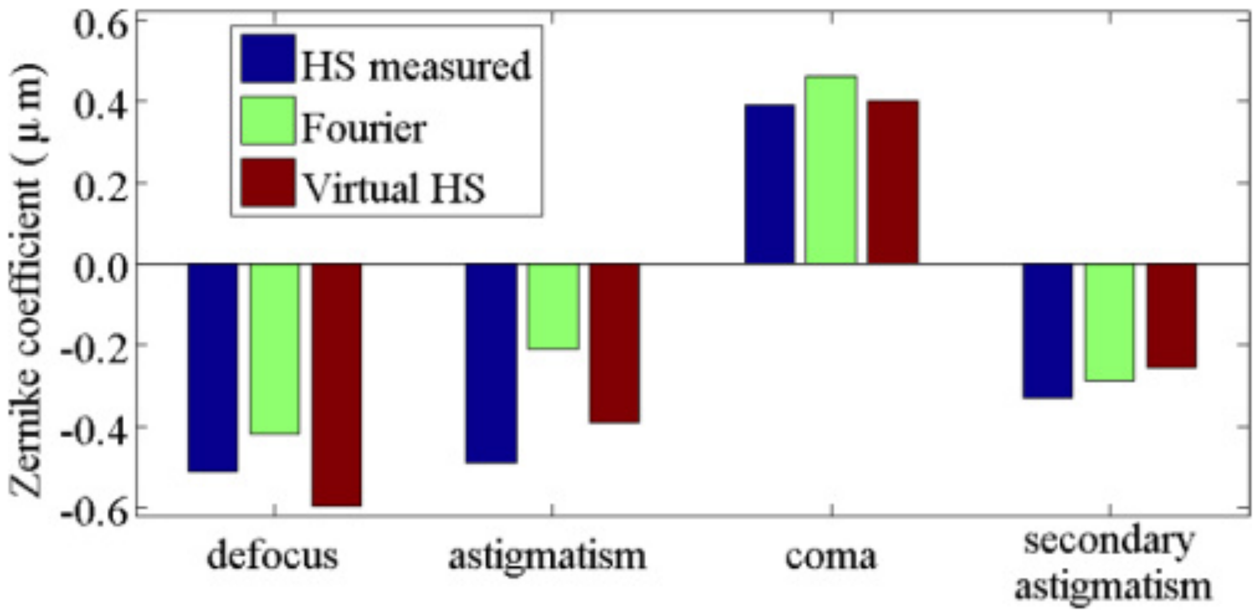
Crystalline lens astigmatism: shape & GRIN



J. Birkenfeld, A. De Castro, S. Marcos. *Astigmatism of the ex vivo human lens: surface and gradient refractive age-dependent contributions* , **IOVS (2015)**

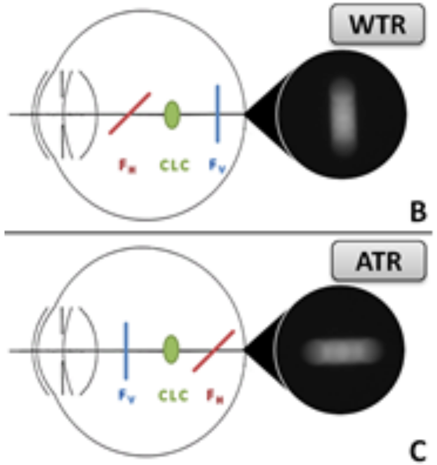
Phase unwrapping with virtual Hartmann-Shack wavefront sensor

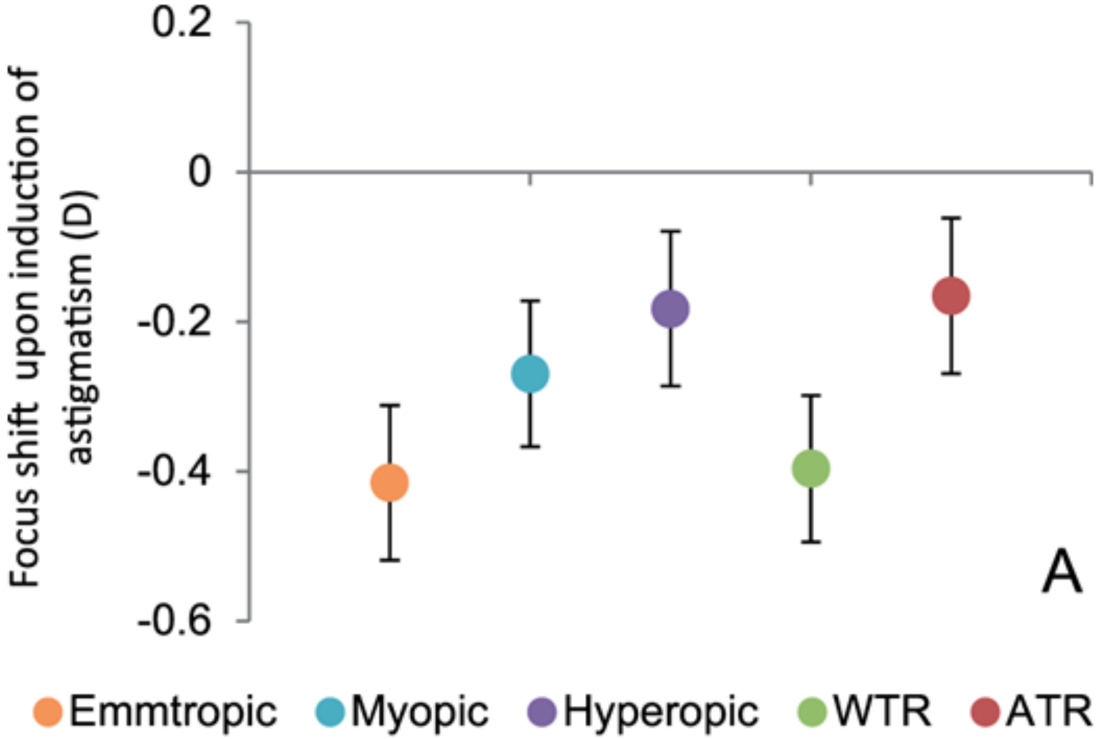




Vyas Akondi, Claas Falldorf, Susana Marcos, and Brian Vohnsen, *Phase unwrapping with a virtual Hartmann-Shack wavefront sensor*, **Opt. Express** 23, 25425-25439 (2015)

Best focus in presence of astigmatism





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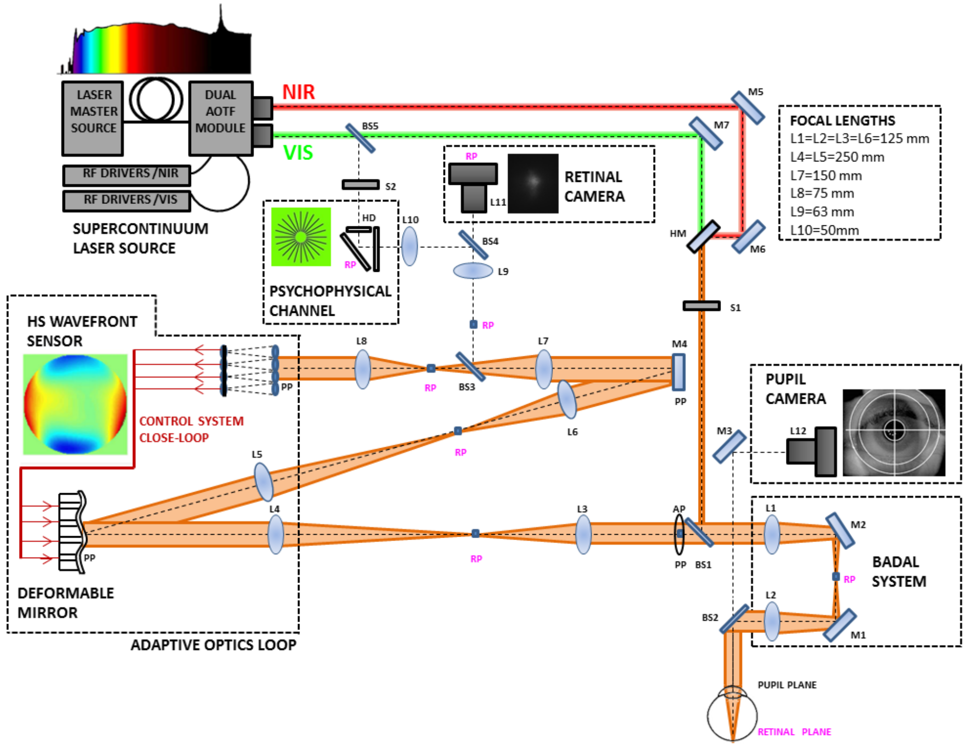
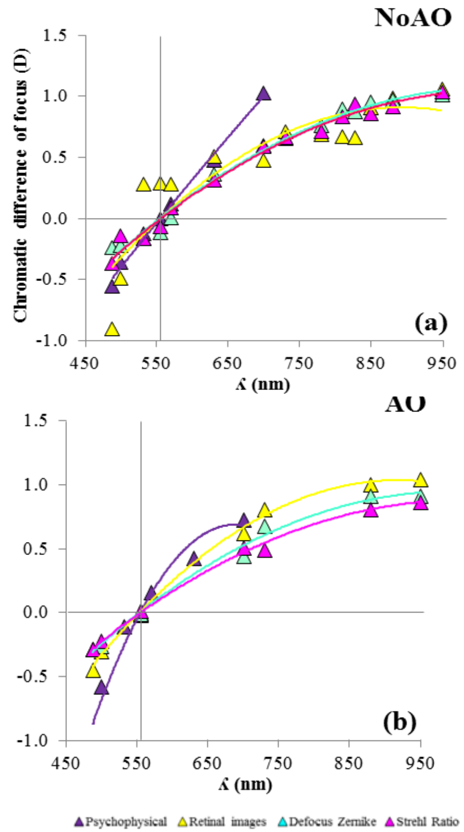
Chromatic aberration of the phakic eye

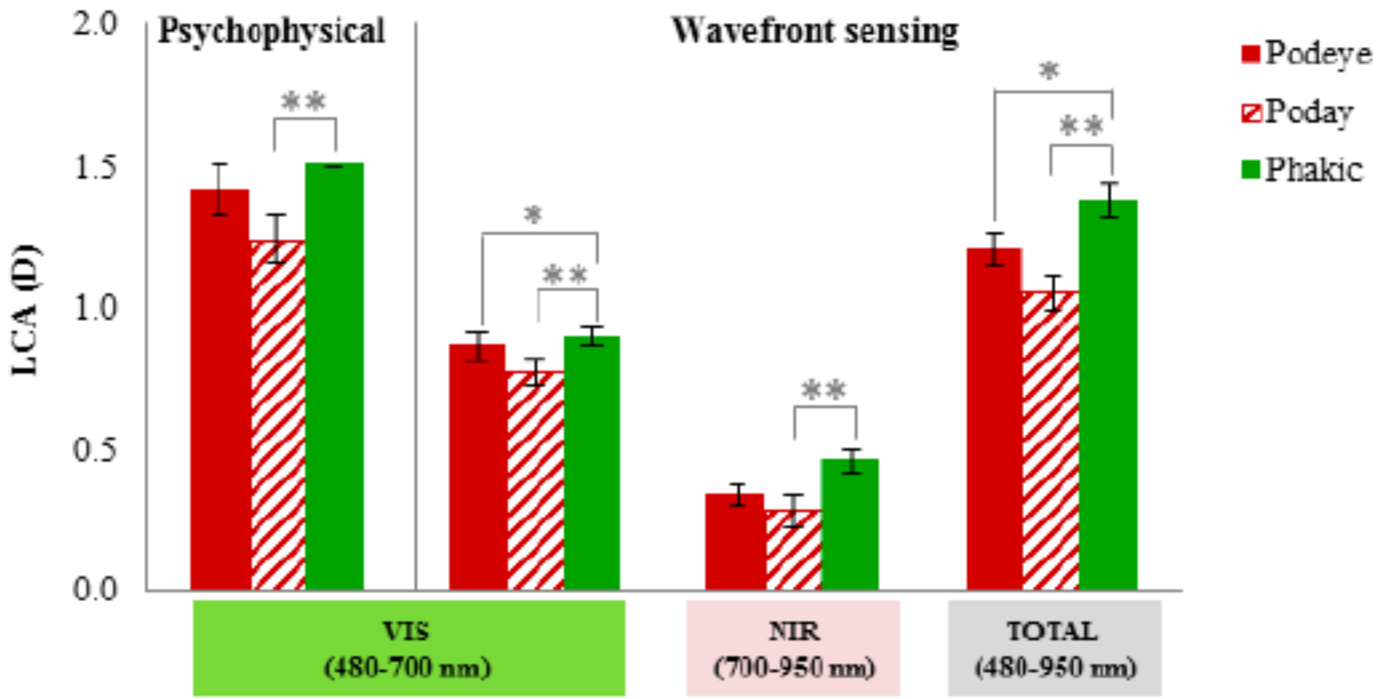




M. Vinas, C. Dorronsoro, D. Cortés, D. Pascual, S. Marcos

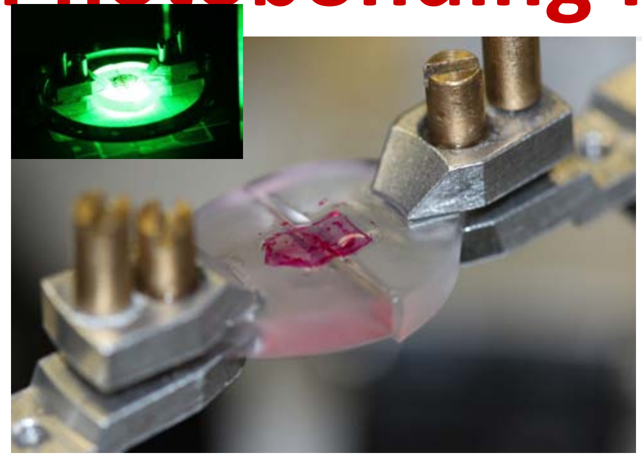
Longitudinal chromatic aberration of the human eye in the visible and near infrared from wavefront sensing, double-pass & psychophysics. **Biomedical Optics Express (2015)**

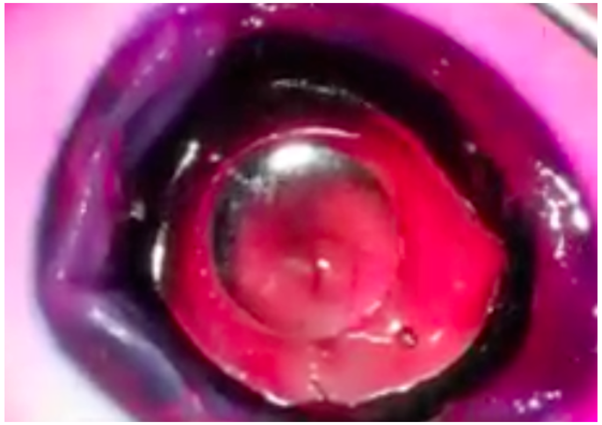
Chromatic aberration in eyes implanted with IOLs of different materials

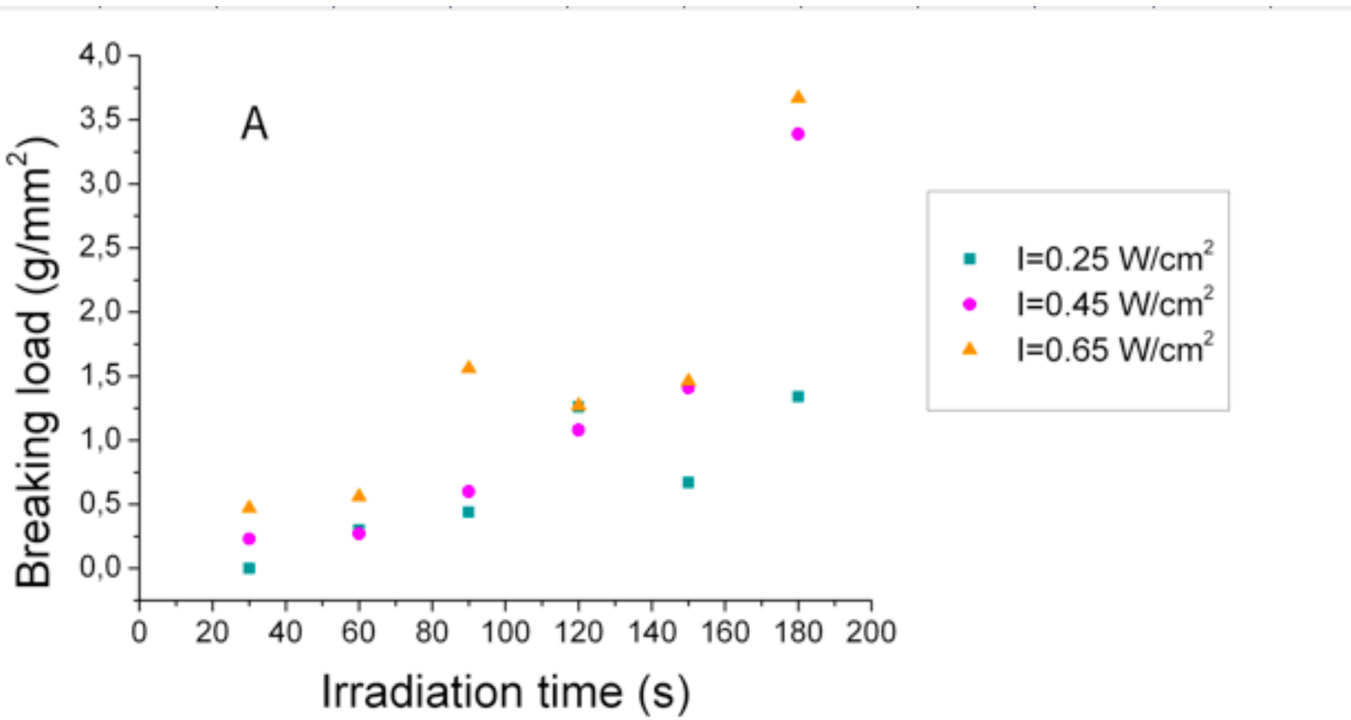


M. Vinas, C. Dorronsoro, N. Garzón, F. Poyales, S. Marcos. *In vivo subjective and objective longitudinal in patients bilaterally implanted with same design hydrophobic and hydrophilic materials*. **Journal of Cataract and Refractive Surgery (2015)**

Photobonding for IOL haptic engagement

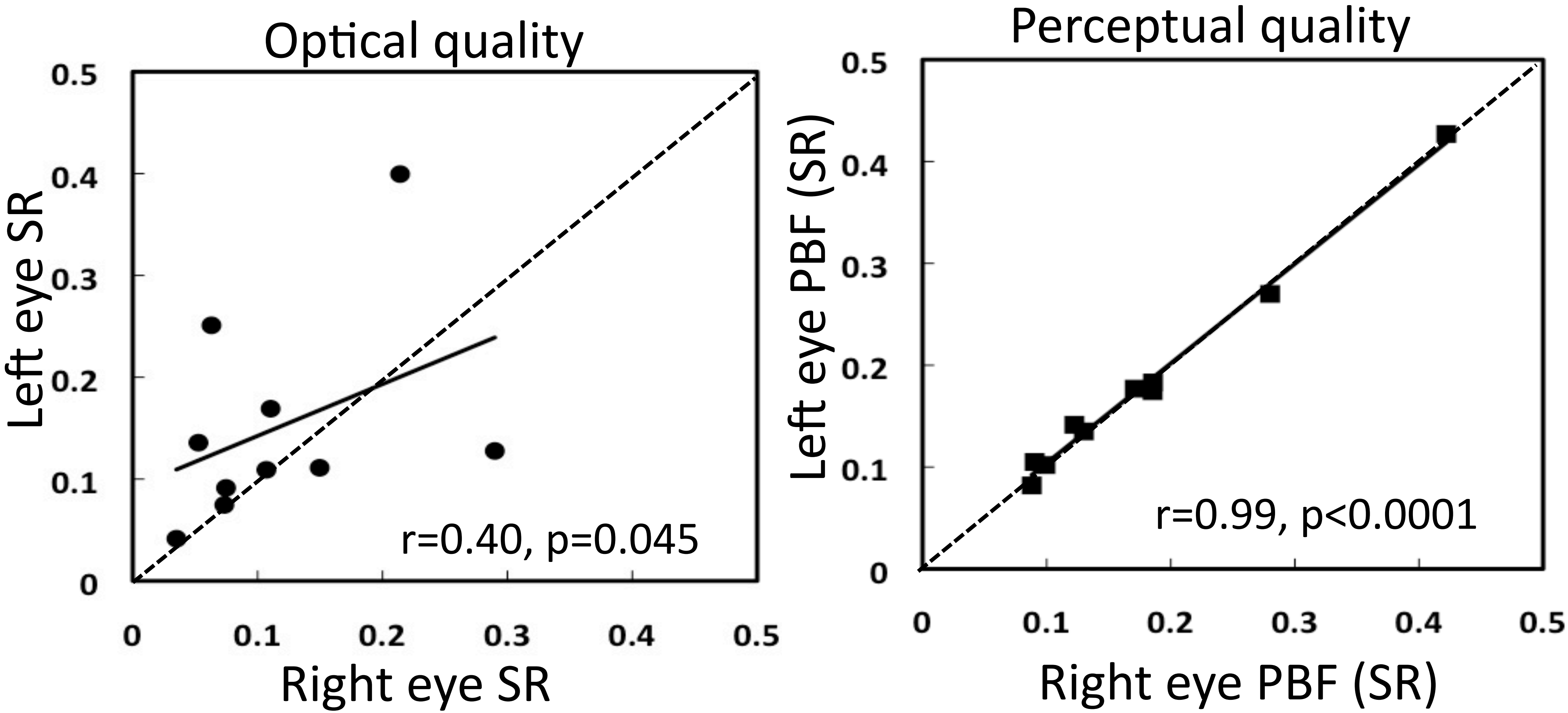






Marcos S, Alejandre N, Lamela J, Dorronsoro C, Kochevar IE *Towards new engagement paradigms for intraocular lenses: light-initiated bondong of capsular bag to lens materials.* **IOVS (2015)**

Natural adaptation from both eyes



A. Radhakrishan, C. Dorronsoro, L. Sawides, M. Webster S. Marcos. *A cyclopean neural mechanism compensating for optical differences between eyes* . **Current biology (2015)**

Similar internal code for blur orientation between eyes

Ocular PSF: OD, OS

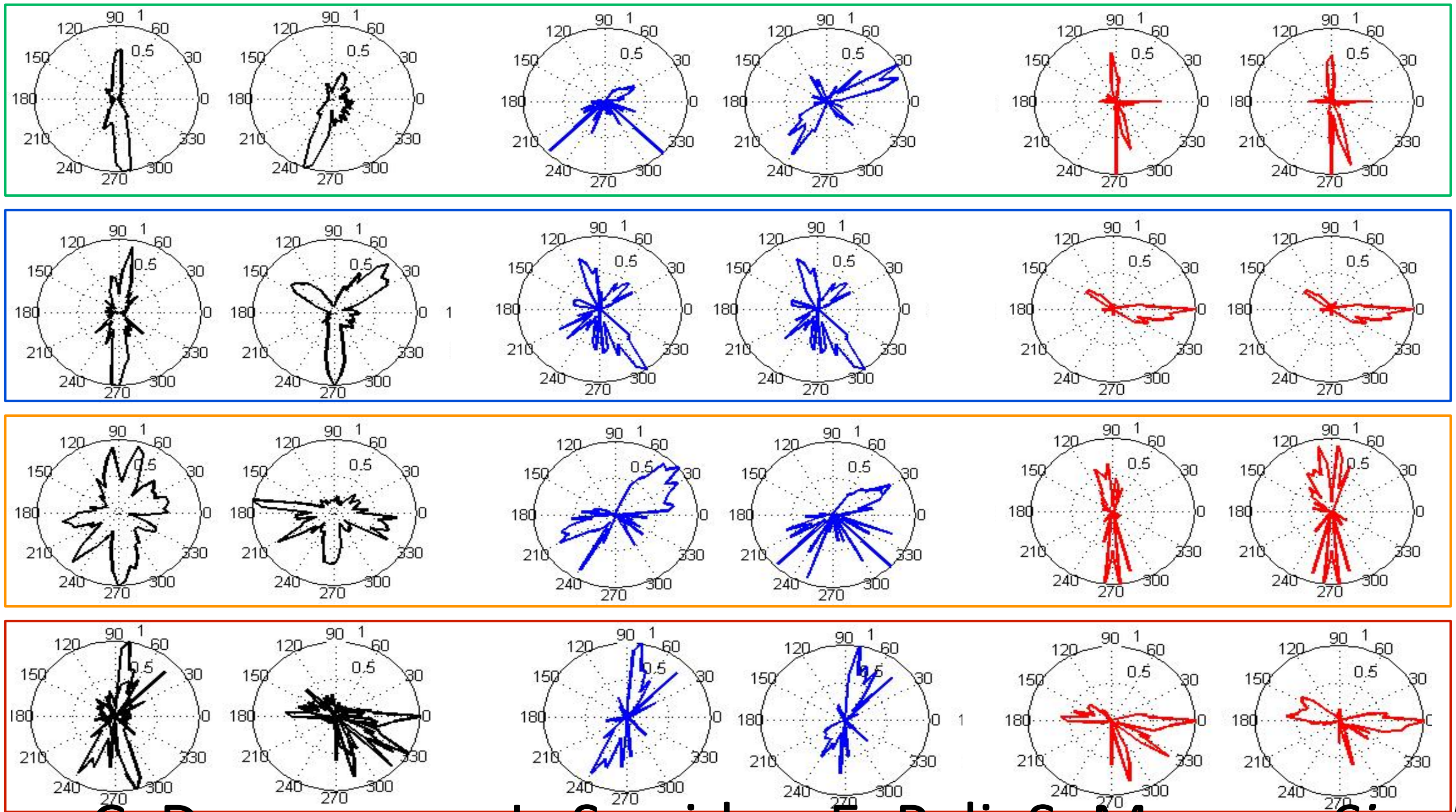
Neural PSF: Positive response (OD, OS); Negative response (OD, OS)

S2 — Different Blur & Same Orientation

S6 — Same Blur & Same Orientation

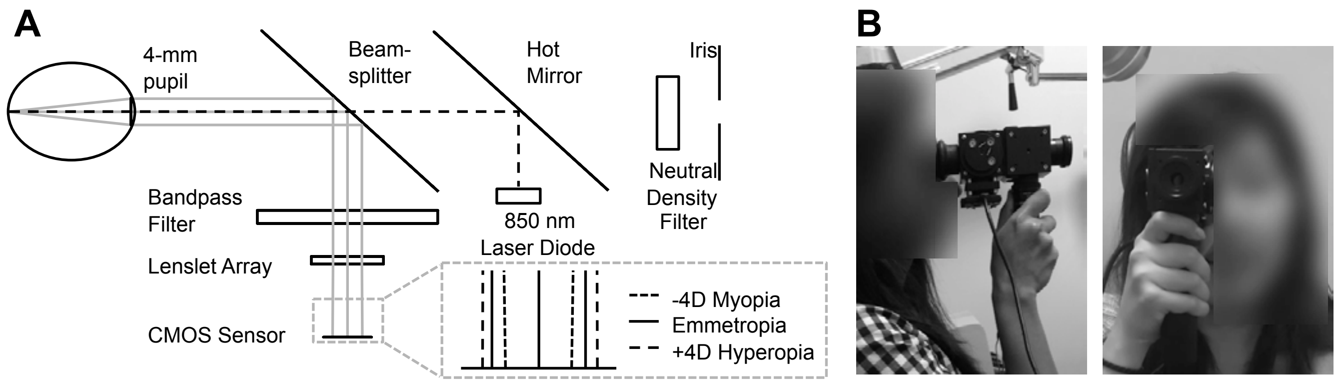
S9 — Same Blur & Different Orientation

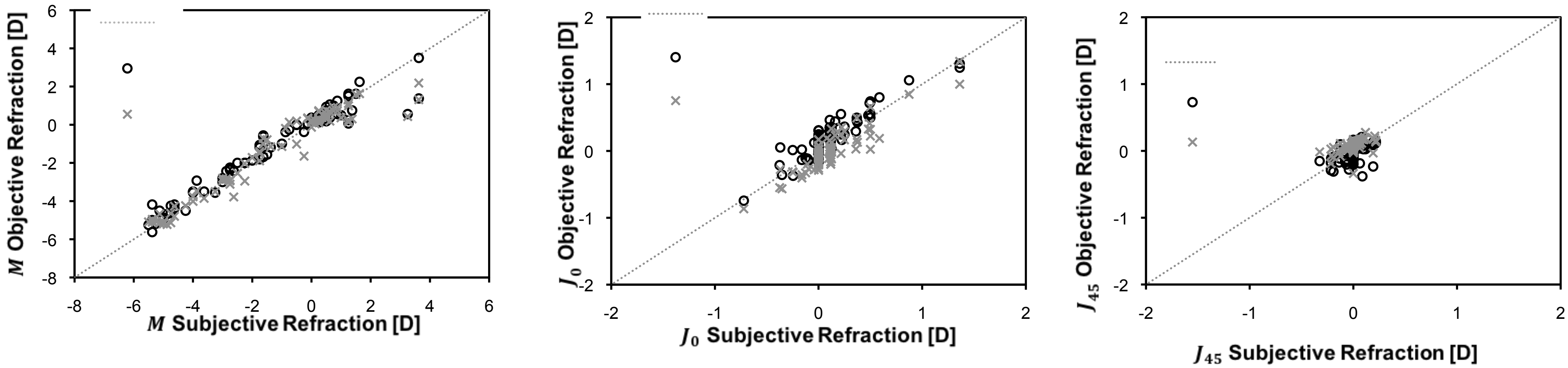
S10 — Different Blur & Orientation



A. Radhakrishan, C. Dorronsoro, L. Sawides, E. Peli, S. Marcos. *Single neural code for blur in subjects with different interocular blur orientation* . **Journal of Vision (2015)**

Comparison Subjective refraction-Quicksee





Durr NJ, Dave SR, Vera-Diaz F, Lim D, Dorronsoro C, Marcos S, Thorn F, Lage E Clinical evaluation of a hand-held and open-view autorefractor . **OVS (2015)**

Funding

MINSTERIO
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FIS 2011-25637; FIS 2014-56643-R; Explora

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