

## Optical instrument to simulate simultaneous vision

CSIC has designed an optical low-cost device, capable of providing the patient with a pure simultaneous visual experience, similar to that achieved by multifocal solutions in contact lenses, intraocular lenses or refractive surgery presbyopic ablation patterns.

This instrument aims at identifying and training patient candidates for simultaneous vision treatments through a real, non-invasive experience, guiding the prescription of a multifocal solution. It can also be used to find the optimal lens design for each patient.

*An offer for patent licensing*

**A prototype is available, capable of providing the patient a pure simultaneous vision experience**

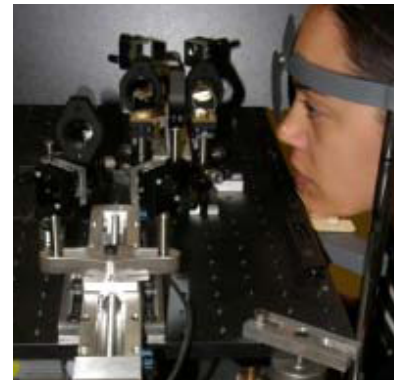
In simultaneous vision correction, the multifocal performance is achieved at the expense of a degradation of the optical quality of the images. The perceived quality of the images is therefore modified and patients need to become adapted. Some patients do not tolerate a multifocal image, making it necessary to anticipate the level of satisfaction of the patient to this potential solution for presbyopia.

To date, no system has been able to provide non-invasively a pure simultaneous vision experience. The patented technology provides the first optical configuration capable of projecting on the patient's retina real optical images of simultaneous vision, by superposing images with different amounts of defocus, while preserving magnification and alignment. The instrument can be used to perform qualitative assessments of vision (satisfaction questionnaires), to perform psychophysical tests (visual acuity, CSF), and to support clinicians decisions and training.

A demonstrator is available, as well as a design for the miniaturized clinical instrument.



The simulation provides support to prescription of simultaneous vision contact or intraocular lenses



Demonstrator prototype, with results reported in scientific application. Design of a miniaturized clinical instrument already available

### Main innovations and advantages

- Real experience of non-invasive, immediate, actual simultaneous vision.
- Rapid test to identify and advice patient candidates to multifocal vision corrections.
- Avoids the frustrating, expensive trial-and-error process of multifocal contact lens fitting.
- Increases patient satisfaction in the implantation of multifocal intraocular lenses or presbyopic corneal refractive surgery.
- Portable look-through instrument, low cost (less than 1,000\$/unit).
- Adjustable to simulate different energy balances for near and far vision, and different near addition values. Besides, it can be used in combination with phoropters and trial lenses.

### Patent Status

USA and European patents filed.

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