



Solutions for a nanoscale world.™

The new bench-top Wyko NT9100 Optical Profiling System



Posted in | [Medical](#) | [Optics and Photonics](#)

50 Hotels in Granada

Book your hotel in Granada online. Find your hotel on a city map!

www.Booking.com/Granada

Vaginismus? Pelvic Pain?

[Click Here](#)
You Are Not Alone!
Connect With
Women & Read
About Treatment
Here.

www.Vaginismus.com

Optical System Design

ZEMAX: Powerful, Accurate Software for Optical System Design

Design
www.zemax.com

- [Popular](#)
- [Latest](#)
- [Random](#)

Sirius Integrator
Manufactures ES-C
Series Solar Panel
Systems for Evergreen
Solar

- [Annual SC Conference](#)
[Powered Again by](#)
[SCinet Network](#)

[The World Usability Day Project Announces 1,000 Free LED Spot/Bulbs Online](#)

- [Sunovia Energy and Solar Electric Power Enter Partnership to Produce Solar-Powered LED Lights](#)

[Daktronics Set Up Integrated LED Video and Scoring System for NFL, London](#)

Europe-Based Solar Cell Manufacturer to Purchase SOLARIS Systems from Oerlikon

[Back One](#)

Share / Email

early diagnosis of certain ocular diseases that are very common today, such as age-related macular degeneration and keratitis, by applying an existing optical technique that, nevertheless, had never before been used for this purpose.



This is a double-step image for a healthy eye (left) and a pathological eye (right) for a patient with unilateral age-related macular degeneration and a pupil diameter of 3mm



Scientists from the UGR have studied the image quality in subjects affected by one of these two pathologies, finding a greater amount

of ocular aberrations and a higher level of scattering (term associated with the dispersion that light suffers when passing through the various ocular media) in affected eyes compared with results in healthy eyes. This significantly affects visual performance.

This work has been performed by the researcher **Carolina Herrera Ortiz**, from the Optics Department at the University of Granada, and directed by professors **José Ramón Jiménez Cuesta** and **Francisco Pérez Ocón**.

Age-related macular degeneration (ARMD) is the leading cause of central vision loss in developed countries, and mainly affects people of over 50 years of age. As far as keratitis is concerned, this condition causes inflammation of the cornea and can cause blindness, due to the severe alterations that the corneal surface may suffer.

Optical instruments

To carry out this work, the scientists measured the image quality with two optical instruments and used a psychophysical test for assessing visual performance. Results from patients with ARMD were compared with those obtained from a control group of similar age without any ocular pathology. Thus, the researchers could verify that for individuals affected by this condition there is an increased level of ocular scattering that could be mainly due to the disruption suffered by the light reflected in the damaged retina of the ARMD eyes, because a priori optics are not expected to be altered, since it is a retinal pathology.

On the other hand, optical quality and visual performance have also been studied in patients affected by keratitis. Eyes affected by keratitis present a poorer optical quality



Quality
in Our
Products



- [Systems](#)
- [Viscotek Unveils OmniSEC Software for Gel Permeation/Size Exclusion Chromatography](#)
- [Daktronics Announces Enhanced ProPixel Freeform LED Products for Daytime Visibility](#)
- [e2v Centre for Electronic Imaging Opened at Milton Keynes Campus of Open University](#)
- [Research Report on Global Microscopes Market](#)
- [Scientists Successfully Make Custom-Shaped Microparticles to Self-Assemble in Liquid Crystal](#)
- [Recycling for Charities Announces Program with Kodak to Educate Consumers on Recycling of Old Cameras](#)
- [Study Reveals Peripheral Vision is Important for Perceiving Scenes](#)
- [Bausch & Lomb Introduces FogShield Sport to Help Prevent Fogging of Goggles](#)
- [Barnes & Noble Launches EBook Reader Featuring First Color Touch Screen and E Ink Display](#)

and a reduced visual performance that improves significantly after the resolution of the pathology. Nevertheless, once medical treatment ends, eyes that suffered from keratitis still have a worse image quality compared to the contralateral healthy eye, a result that significantly influences visual performance even having reached the normal values of visual acuity.

Visual quality characterization

The results of this research carried out at the UGR will make a full and objective characterization of visual quality in patients affected by any of these ocular pathologies. So far, the use of new techniques for assessing objectively the optic quality of the eye has been limited to studies on refractive or cataract surgery. However, as Carolina Ortiz Herrera suggests, this work "may be of particular interest to establish an early diagnosis of certain ocular diseases such as age-related macular degeneration, the main cause of central vision loss in developed countries."

Furthermore, this technique allows researchers to carry out a monitoring of possible stages of both diseases. Ortiz Herrera stresses the importance of including "both in the clinical practice of optometry and ophthalmology" the use of new techniques that, objectively, could indicate deterioration in vision even when the visual acuity values are normal, since "vision is not only seeing well, but providing quality and comfort."

Source: <http://www.ugr.es/>

Published Date: 26/11/2009

[Click here for optics news archive](#)

[Tab options](#)

Δ Top

Back One

Advertisement



Piezo Motors



Microscopy



Nanopositioning



Hexapods



Beam Steering



[Nanopositioning technology and motion control systems](#)

Other AZoNetwork Sites | [AZoNano.com](#) | [AZoCleantech.com](#) | [AZoM.com](#) | [AZoBuild.com](#) | [News-Medical.Net](#)

[home](#) | [terms](#) | [about](#) | [help/faq](#) | [materials](#) | [applications](#) | [news](#) | [directory](#) | [classified](#) | [courses](#) | [events](#) | [jobs](#) | [books](#) | [newsletter](#)

Version 4.0 AZoOptics - The A to Z of Optics...AZoM™.com Pty.Ltd Copyright © 2000-2009