

Content

Products

Advertise

Publications Information

Request Quote

Search Site

<u>News</u>

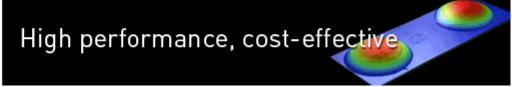
<u>Articles</u>

Events Courses

Jobs Classifieds



Solutions for a nanoscale world.™



The new bench-top Wyko NT9100 Optical Profiling System



Researchers Provide Early Diagnosis of Ocular Diseases Using Optical Instruments

Posted in | Medical | Optics and Photonics



Ads by Google

50 Hotels in Granada

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

www.Booking.com/Granada

Vaginismus? Pelvic Pain?

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

www.zemax.com

- <u>Popular</u>
- <u>Latest</u>
- 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 Researchers from the University of Granada have provided an

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





<u>Systems</u>

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 SelfAssemble 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

<u>Tab options</u>

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/

 $\textbf{Published Date} \colon 26/11/2009$

Click here for optics news archive

Δ Top Back One



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