
Institute of Physics

Optical Group

<http://www.iop.org/IOP/Groups/OP/>

IMAGING IN THE EYE IV: TECHNOLOGIES AND CLINICAL APPLICATIONS

Full-day meeting: 10:55 am, 28th May, 2008

The Institute of Physics

76 Portland Place, London, W1B 1NT

Programme and Abstracts

CHAIR: ANDY MCNAUGHT, GLOUCESTERSHIRE EYE
UNIT

10:55 Welcome

**11:00 Challenges in Retinal Imaging - A Clinical
Prespective (Invited)**

Simon Harding
Royal Liverpool University Hospital

11:30 Joining Retinal Vessel Segments

Bashir Al-Diri¹, Andrew Hunter¹, David
Steel², Maged Habbeeb

¹University of Lincoln

²Sunderland Eye Infirmary

**11:45 Automated detection of referable diabetic
retinopathy**

Alan Fleming¹, Keith Goatman¹, Graeme
Williams², Sam Philip², Peter Sharp¹, John
Olson²

¹Biomedical Physics, Aberdeen University

²Diabetes Retinal Screening Service,
Foresterhill, Aberdeen

**12:00 Specifying Diabetic Retinal Lesions using
Multi-variate Gaussian Model Fitting**

E.M. Massey, A. Hunter
Department of Computing and Informatics,
University of Lincoln

**12:15 Contextual detection of diabetic pathology
in wide-field retinal angiograms**

E Trucco¹, C R Buchanan², B Dhillon³

¹School of Computing, University of Dundee

²School of Engin. and Physical Sciences,
Heriot Watt University

³Princess Alexandra Eye Pavilion, NHS and
University of Edinburgh

12:30-14:00 LUNCH AND POSTER PROGRAMME

– SEE ENDNOTE FOR HOW TO RESERVE LUNCH AT
THE MEETING

CHAIR: EMANUELE TRUCCO, DUNDEE UNIVERSITY

14:00 Developments in Retinal Imaging (TBC)

Fred Fitzke
Moorfields Hospital, University College,
London

14:30 Robust detection of retinal landmarks

Emanuele Trucco and Adria` Perez Rovira
School of Computing, University of Dundee

**14:45 Retinal Fundus Image Constrast
Normalization using Mixture of Gaussians**

Abhir Bhalerao¹, Sarabjot Anand¹ and
Ponnusamy Saravanan²

¹Department of Computer Science, University
of Warwick

²Department of Diabetes and Endocrinology,
University Hospitals of Coventry and
Warwickshire

**15:00 A Virtual Scanning Laser Ophthalmoscope
(VSLO) — Simulating the image formation
process of a confocal microscope**

Steve Gruppeta
Department of Optometry and Visual Science,
City University, London

**15:15 The English Diabetic Retinal Screening
Programme**

Peter Scanlon
¹Ophthalmology , Gloucestershire Eye Unit,
Cheltenham

15:30-16:00 TEA

CHAIR: ANDY HARVEY, HERIOT WATT UNIVERSITY

**16:00 Retinal Vessel Oximetry Using
Hyperspectral Imaging in Retinovascular
Disease**

D.J. Mordant¹, I. Alabboud², A.R. Harvey²,
A. I. McNaught¹

¹Ophthalmology , Gloucestershire Eye Unit,
Cheltenham

²*School of Engineering and Physical Sciences,
Heriot Watt University*

16:15 In Vivo Measurement of Ocular Aberrations with a Distorted Grating Wavefront Sensor

P. Harrison¹, L. Diaz-Santana², D.M. Cuevas¹,
G.R.G. Erry¹, P. Fournier¹, C. Torti²

¹Kestrel Corporation, Albuquerque, USA

²Henry Wellcome Laboratories for Visual
Science, Dept. of Optometry and Visual
Science, City University, London

16:30 Numerical Measurements of In-Vivo Cornea Shape using En-Face Multiple Delay Element OCT

Lucian Plesea, Adrian Gh. Podoleanu

Applied Optics Group, School of Physical
Sciences, University of Kent

16:45 Development of a Snapshot Spectral Imaging Camera for Blood Oximetry in the Retinal Vasculature

G. Muyo¹, I. Alabboud¹, A. Gorman¹, D.
Mordant², A. I. McNaught² and A. R. Harvey¹

¹*School of Engineering and Physical Sciences,
Heriot Watt University*

²*Ophthalmology , Gloucestershire Eye Unit,
Cheltenham*

17:00 Retinal Oximetry: Clinical Studies

S.H. Hardarson^{1,2}, S. Traustason², R.A.
Karlsson², G.H. Halldorsson², T. Eysteinnsson¹,
J.M. Beach², J.A. Benediktsson³, E.
Stefansson¹

¹*University of Iceland-Ophthalmology*

²*Oxymap ehf.,*

³*University of Iceland-Electrical and
Computer Engineering.*

17:15 CLOSE

POSTER PROGRAMME

Development of a model eye to calibrate a hyperspectral imager for blood oximetry in the human retina

I. Alabboud², D.J. Mordant¹, A. I. McNaught¹, A.R. Harvey²,

¹*School of Engineering and Physical Sciences, Heriot Watt University*

²*Ophthalmology , Gloucestershire Eye Unit, Cheltenham*

Automated detection of Age-related Macular Degeneration for screening programmes

Navdeep Saini¹, Tom Williamson², Sarah Barman³, Bunyarit Uyyanonvara⁴, Akara Sopharak^D, Cattleya Duangate^D

¹*City University,* ²*St Thomas' Hospital,* ³*Kingston University,* ⁴*Thammasat University*

Automatic Exudate Detection with a Support Vector Machine Classifier

Akara Sopharak¹, Khine Thet Nwe², Yin Aye Moe², Matthew N. Dailey², Bunyarit Uyyanonvara¹, Sarah Barman³

¹*Sirindhorn International Institute of Technology, Thammasat University*

²*Computer Science and Information Management, Asian Institute of Technology*

³*Kingston University, UK*

IF YOU WOULD LIKE TO PRESENT A POSTER PLEASE E-MAIL A.R.HARVEY@HW.AC.UK

The meeting is open to all and there is no charge.

A buffet lunch will be available at £10 per person, payable on the day: reserve lunch by e-mailing a.r.harvey@hw.ac.uk by Monday 26th May with 'IoP Lunch' in the subject heading. Meals may also be obtained from various outlets along Great Portland Street or at the *Royal Institute of British Architects*

Abstracts for this meeting are at <http://www.ece.eps.hw.ac.uk/~arharvey/IoP/ImagingInTheEye08.pdf>

MEETING ORGANISERS

Dr Sarah Barman, Kingston University, *Dr Keith Goatman*, University of Aberdeen, *Prof Andy Harvey*, Heriot Watt University, *Prof Andy McNaught*, Cheltenham Eye Clinic *Prof Emanuele Trucco*, University of Dundee

For further information on this conference, please contact

Andy Harvey (a.r.harvey@hw.ac.uk, tel 0131 451 3356), *Andy McNaught* (andy.mcnaught@btopenworld.com, tel. 07774032718) or *Emanuele Trucco* (e.trucco@dundee.ac.uk, tel. 01382 386504)