

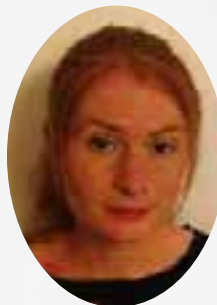
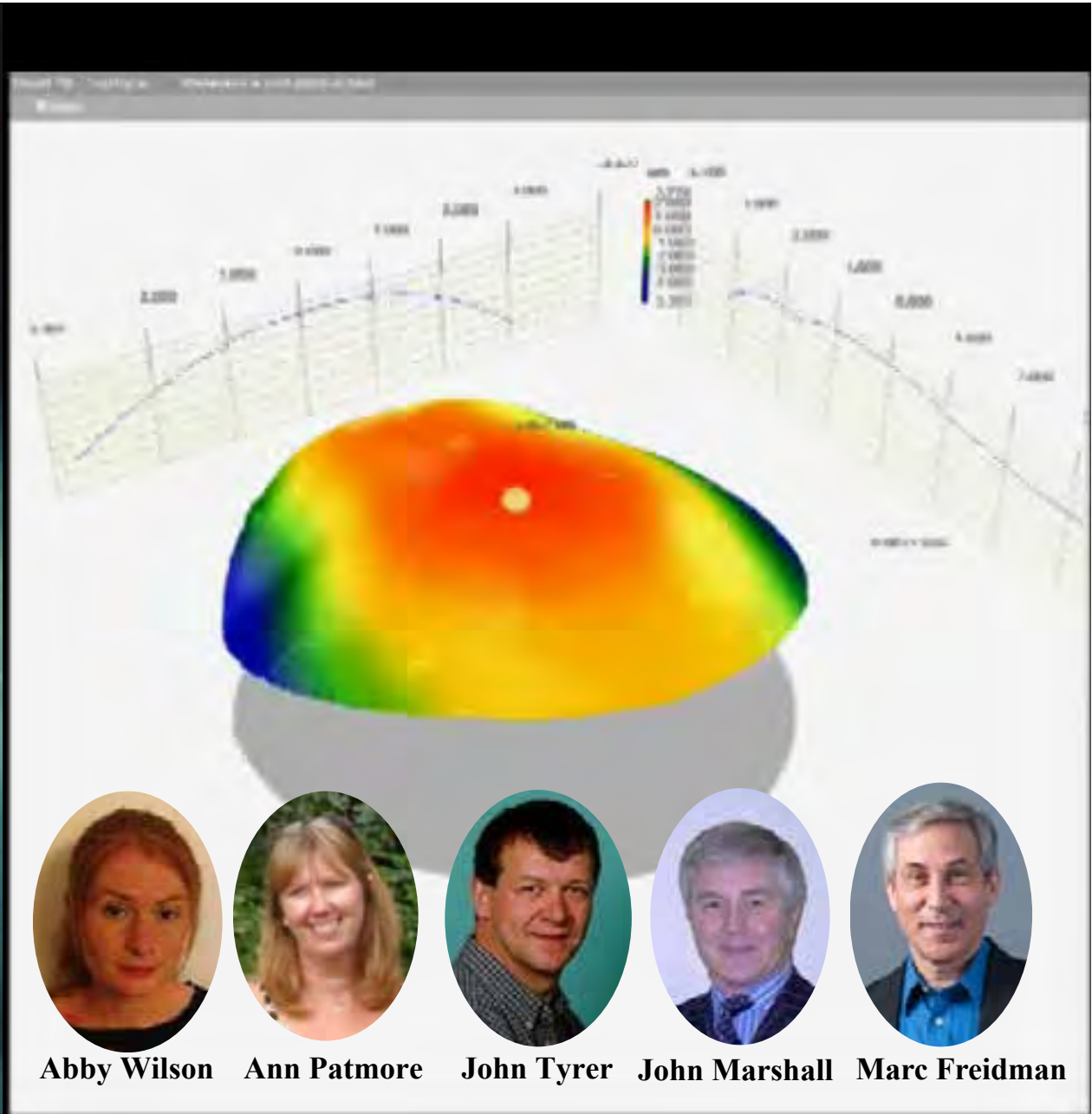
Biomechanics of PiXL

- I have the following financial interests or relationships to disclose:
 - **Avedro: Consultant/Advisor, Lecture Fees, Equity Owner, Patents/Royalty**
 - **Avellino: Consultant/Advisor, Lecture Fees, Equity Owner**
 - **Ellex: Lecture Fee, Patents**
 - **Intellectual Ventures: Consultant/Advisor, Patents**
 - **SCHWIND eye-tech-solutions: Consultant/Advisor, Lecture Fees**

**International CXL Experts Meeting
Zurich 3rd December 2016**

UV Crosslinking





Abby Wilson



Ann Patmore



John Tyrer



John Marshall

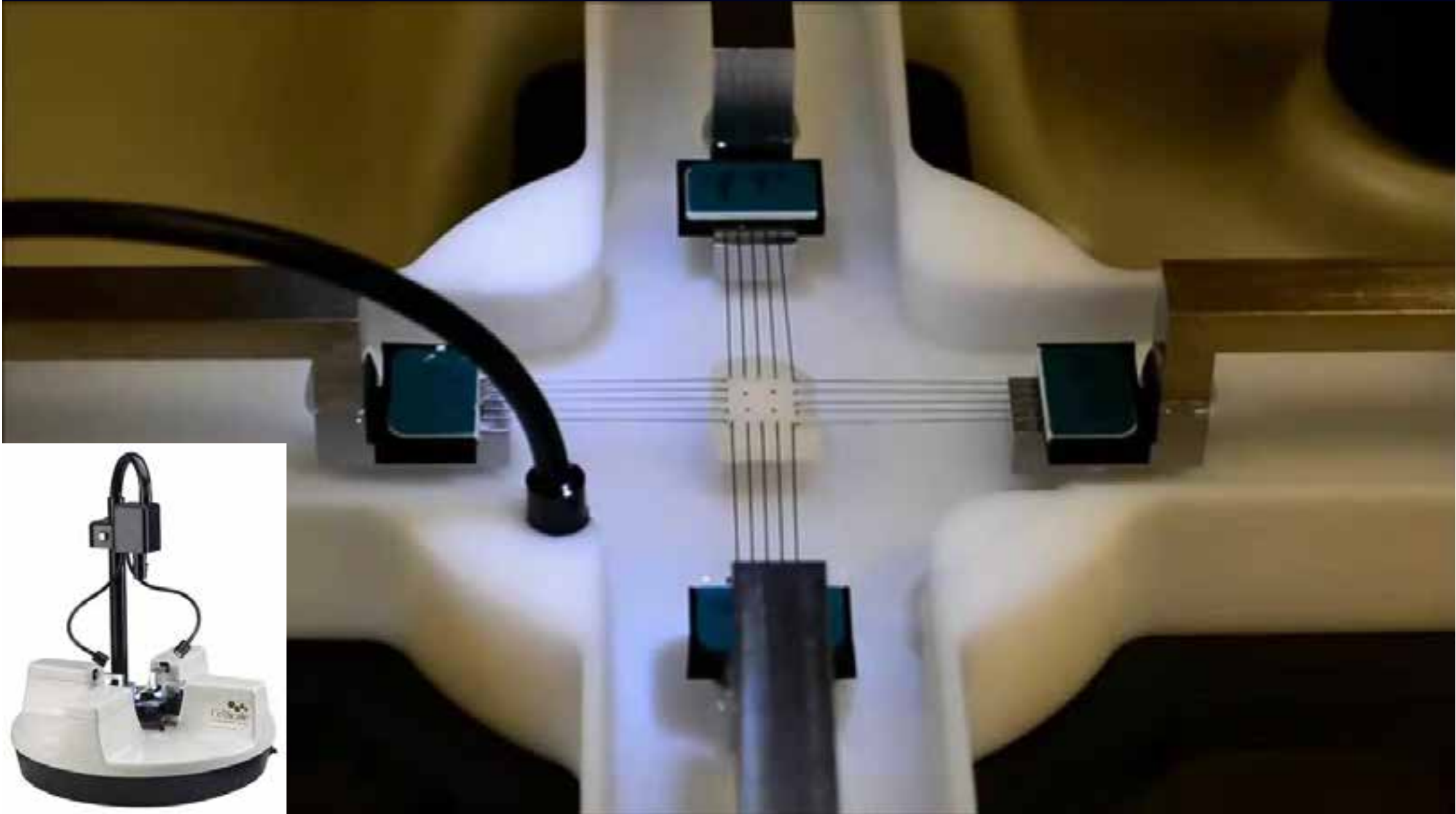


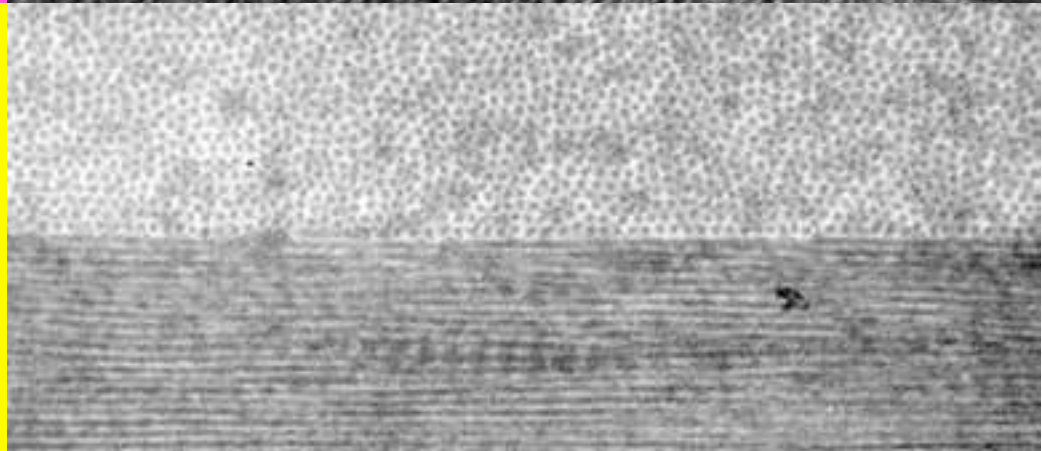
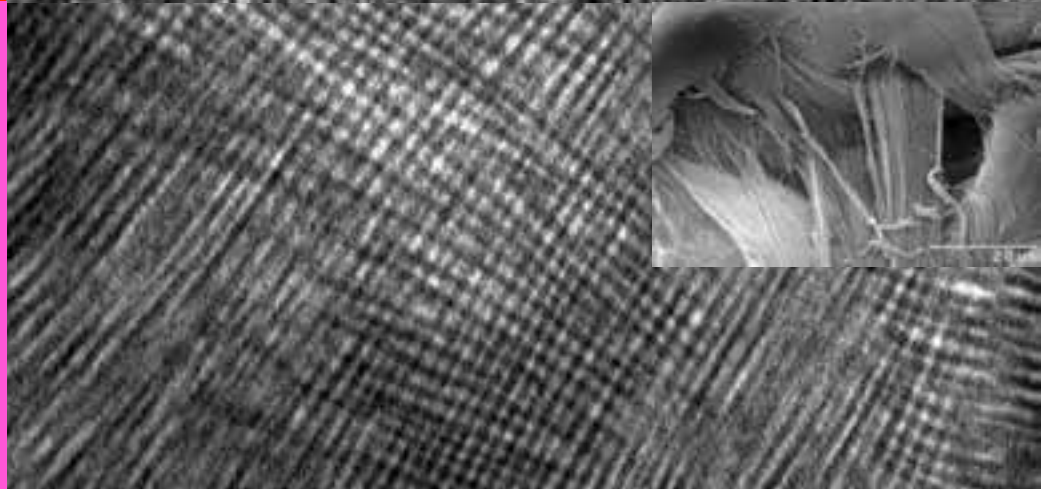
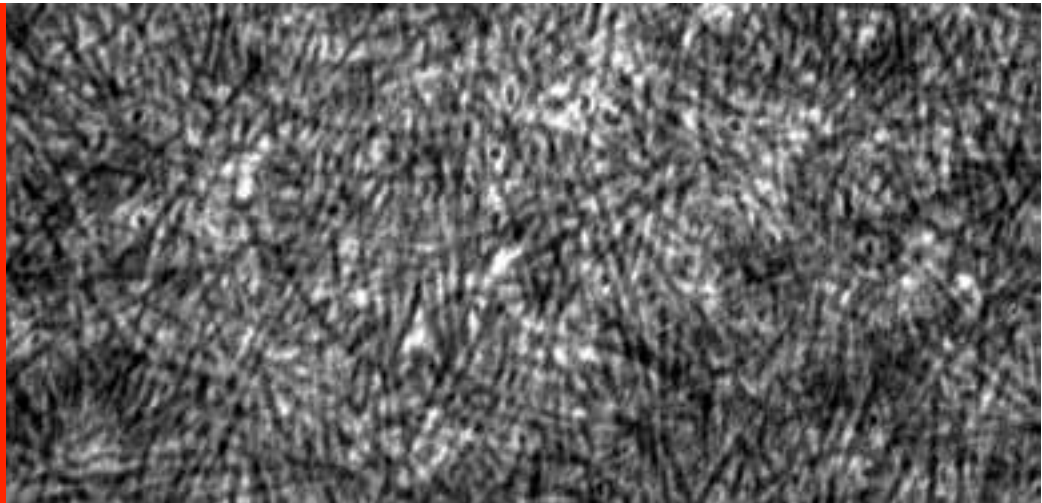
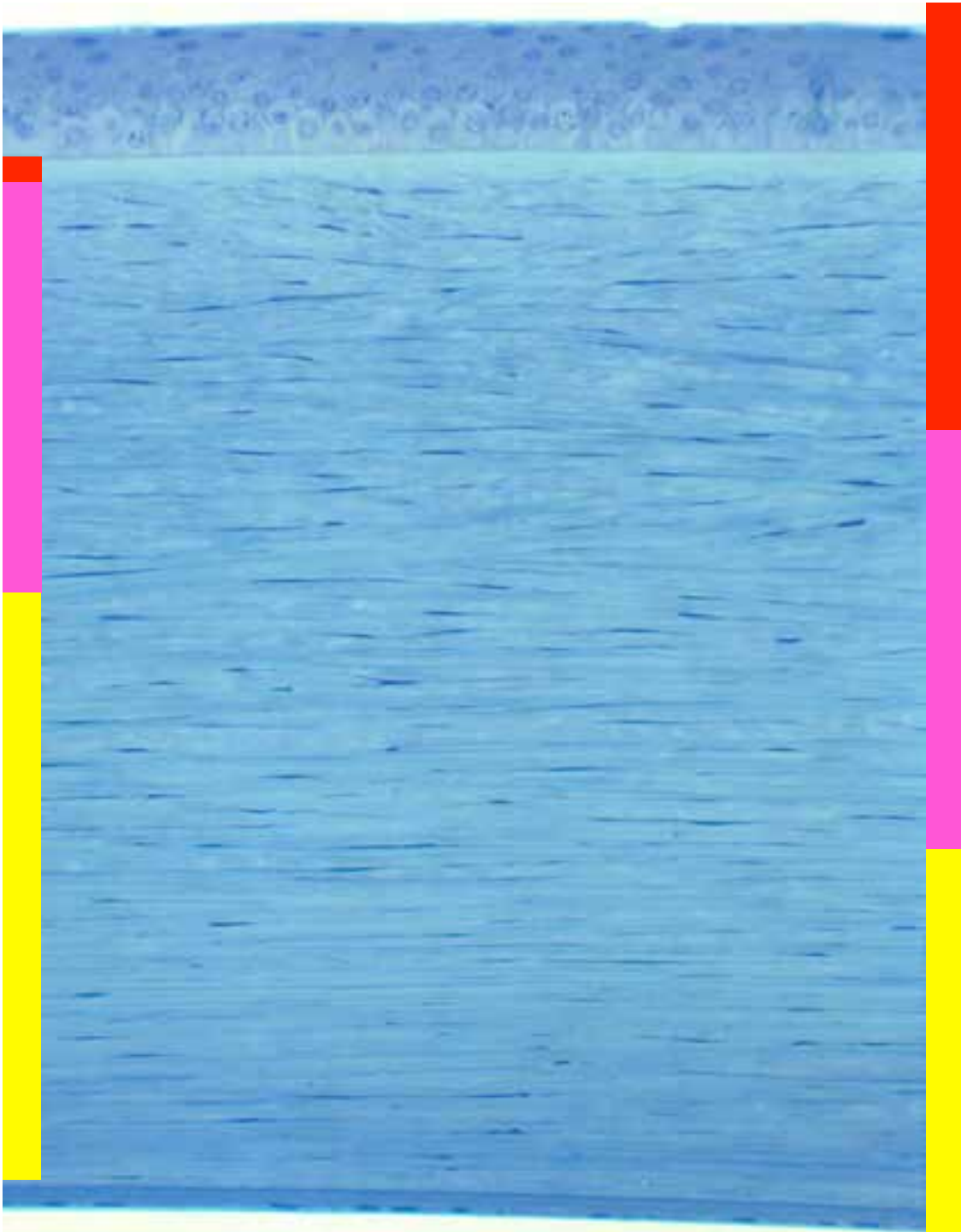
Marc Freidman

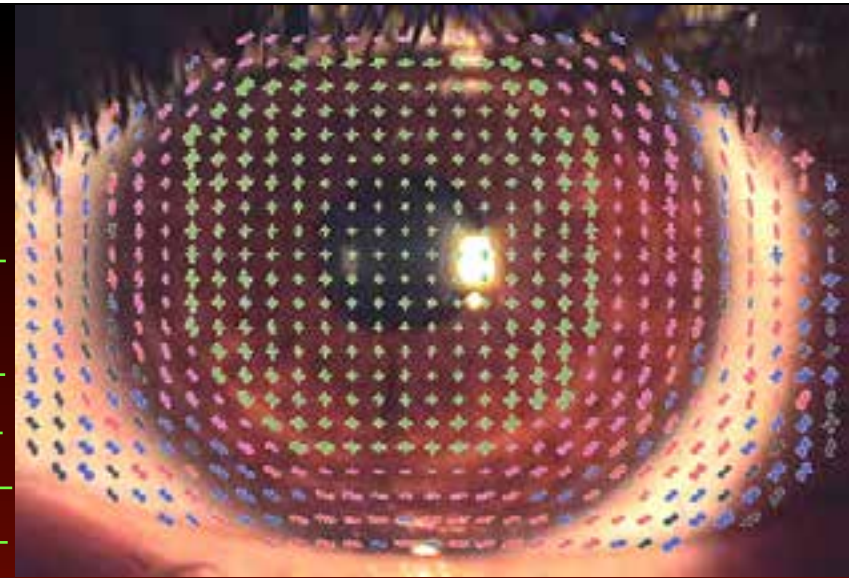
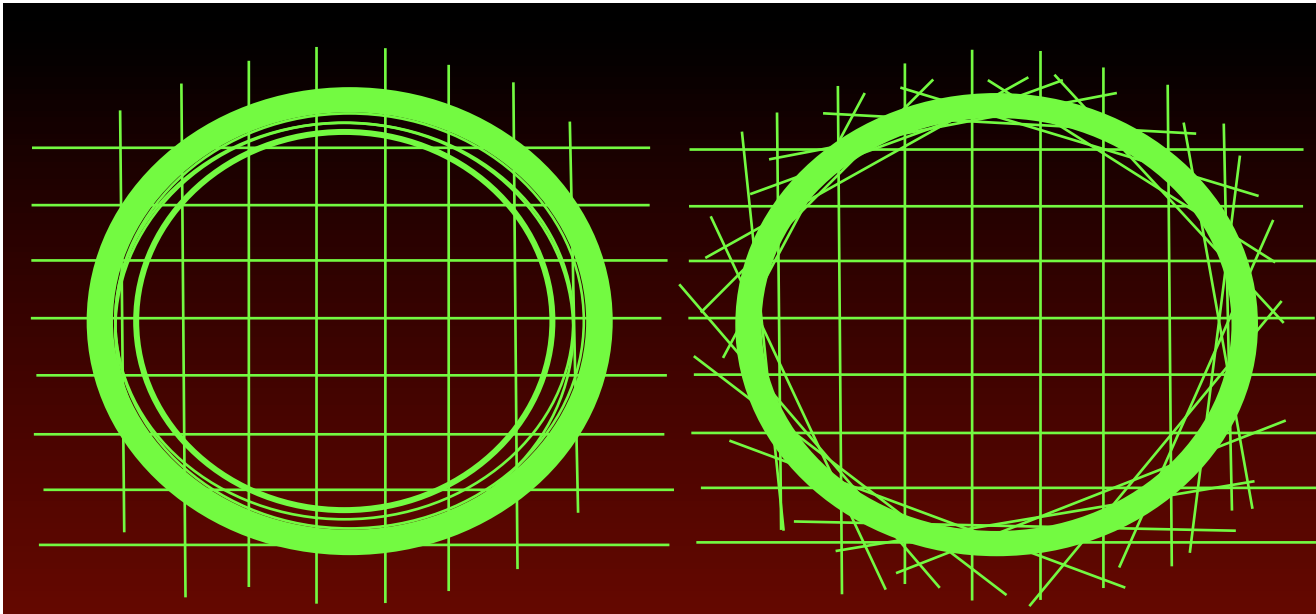
Extensionmetry



Extensionmetry Two-Way Stretch







Keith Meek et al, Structure, 2004



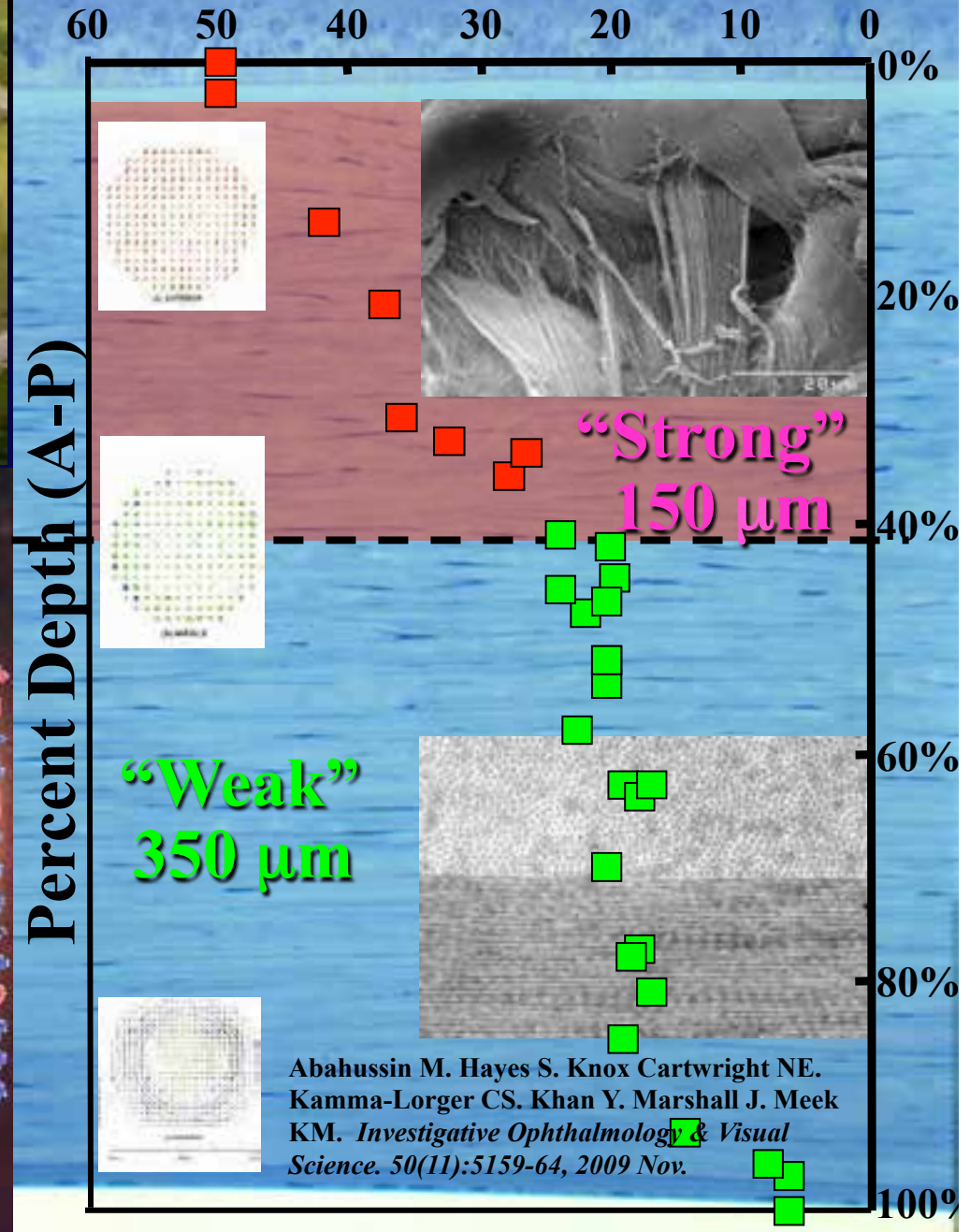
Newton's Bridge, Queens College Cambridge



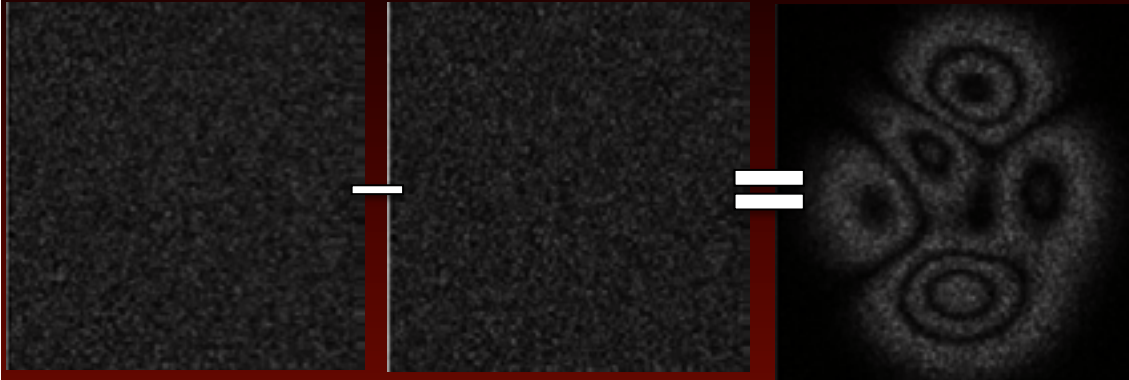
Keith Meek



Tensile Strength (g/mm)



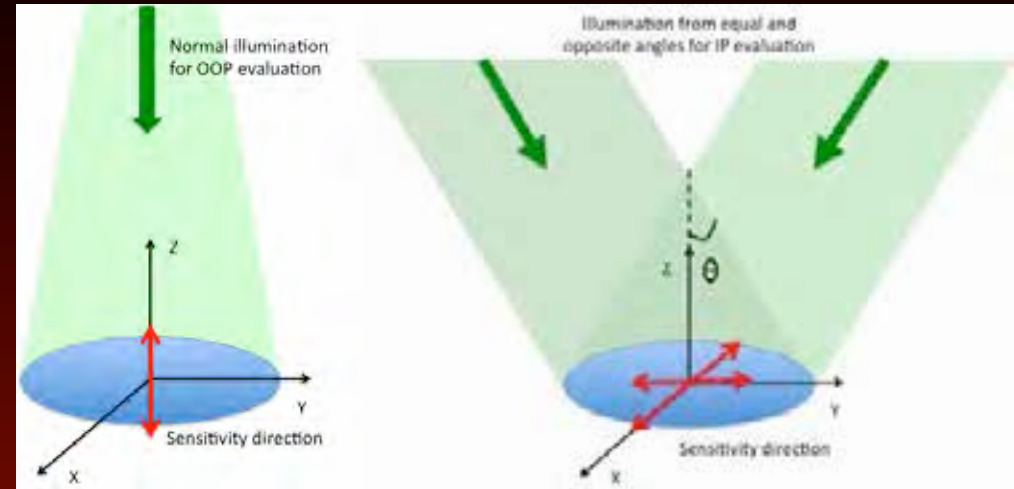
Interferometry



Reference state

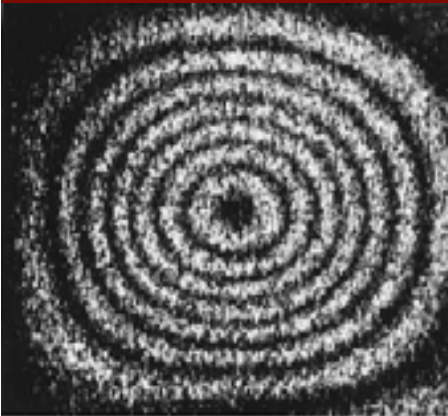
Deformation

Subtraction
Fringes

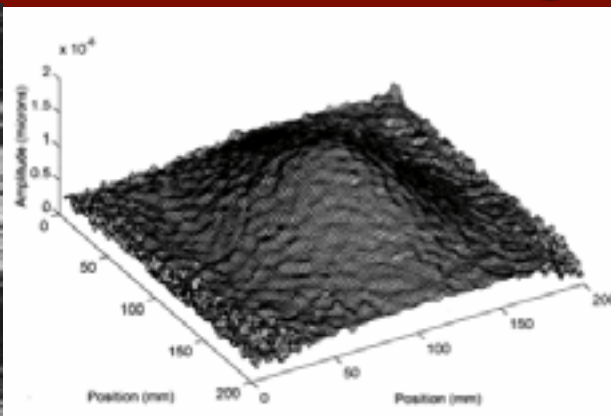


Out of plane (OOP)

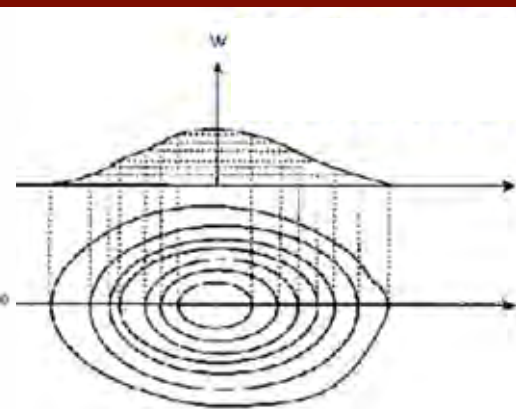
In plane (IP)



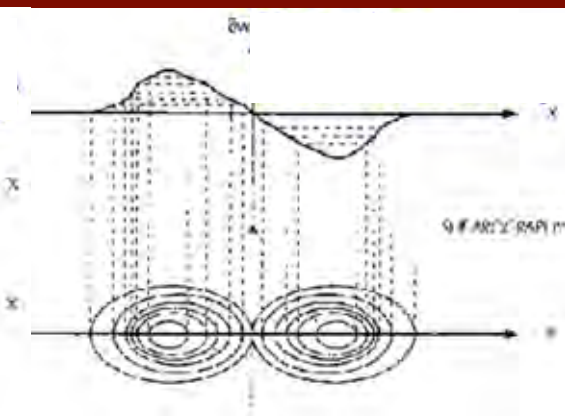
Fringes (OOP)



Displacement Map

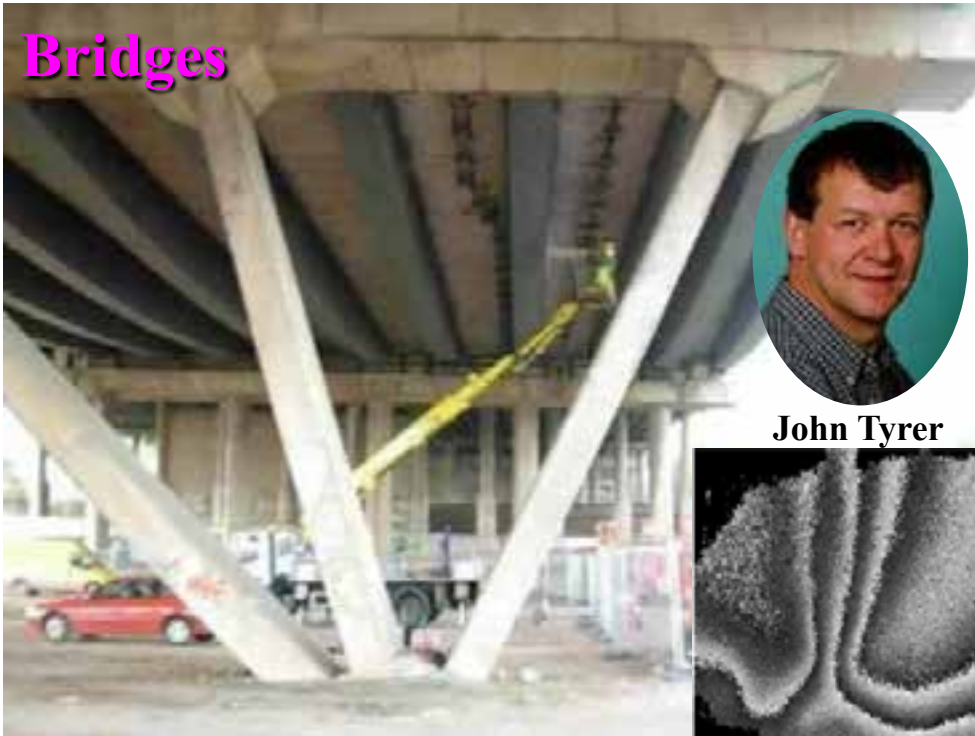


Displacement
Surface Change



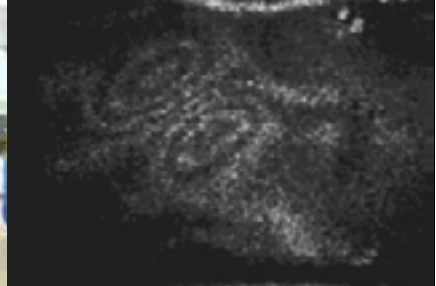
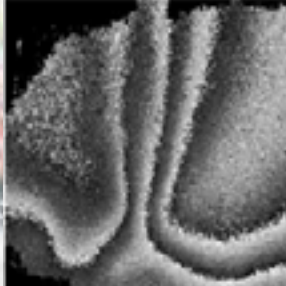
Shearing
Rate of Change (Strain)

Bridges

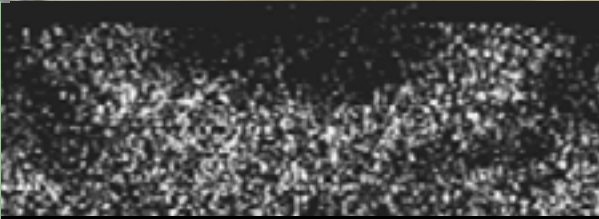


John Tyrer

Boats

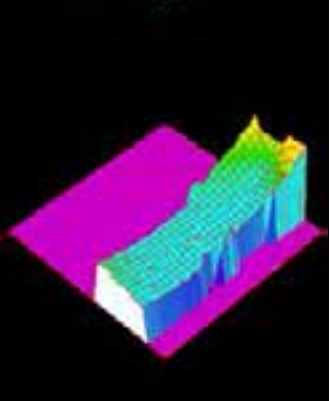
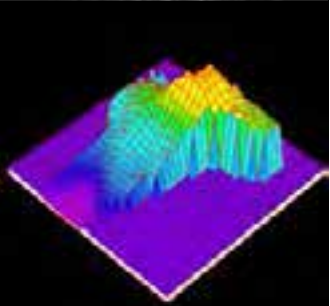
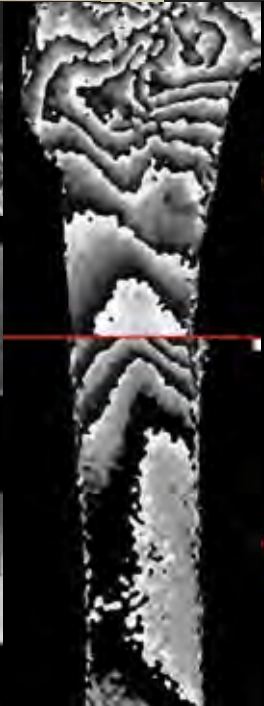


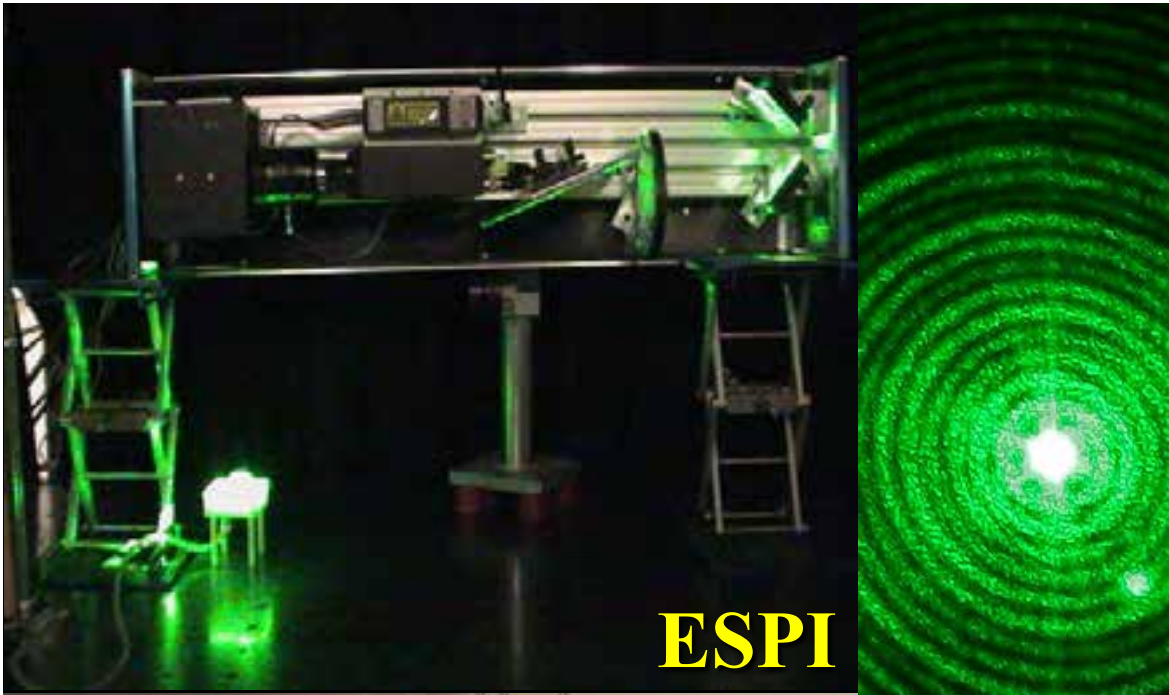
Biology



Vertical displacement

Horizontal displacement



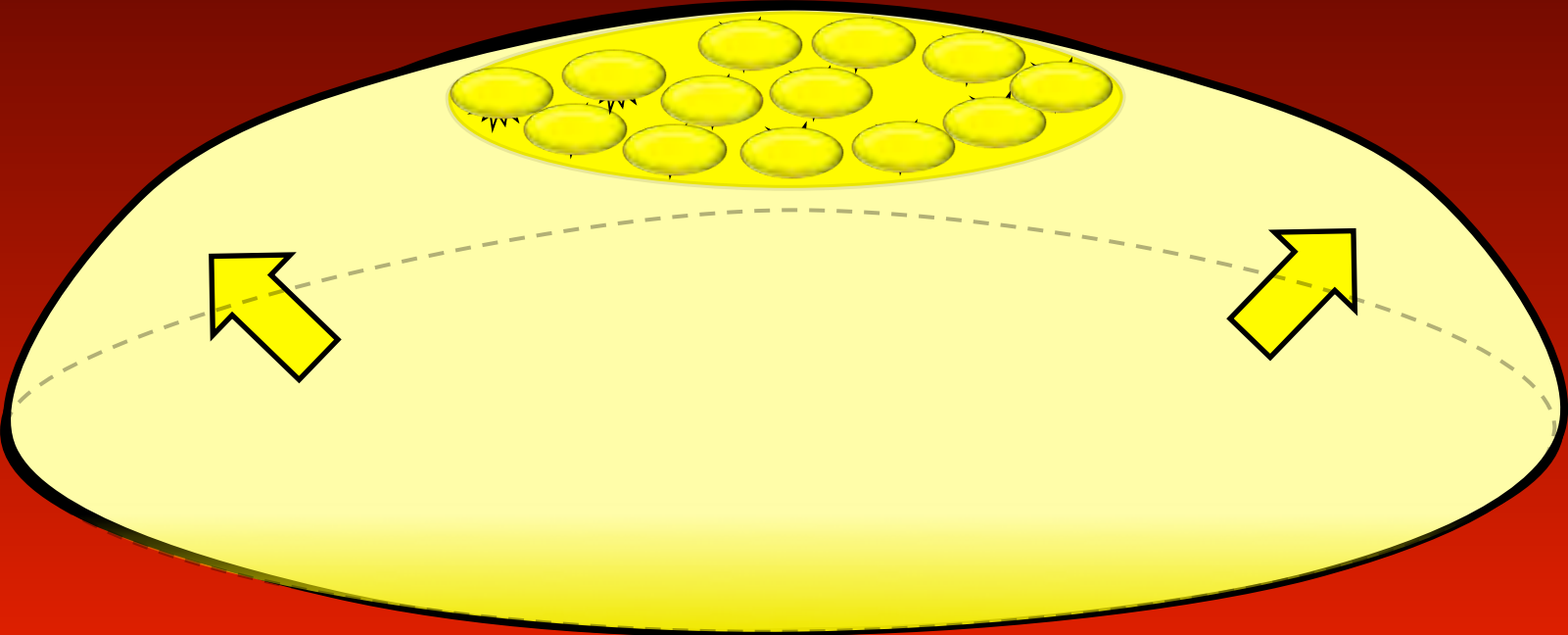
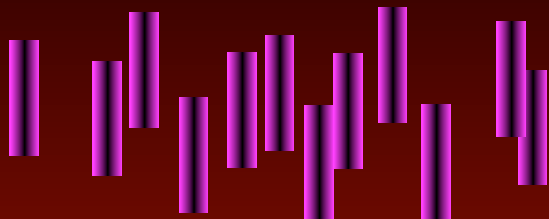
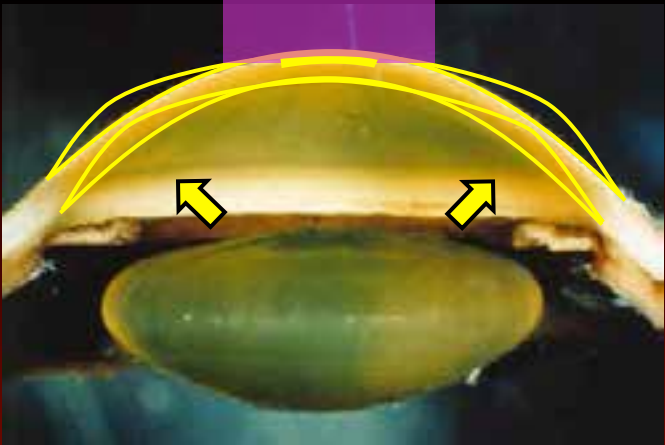


ESPI

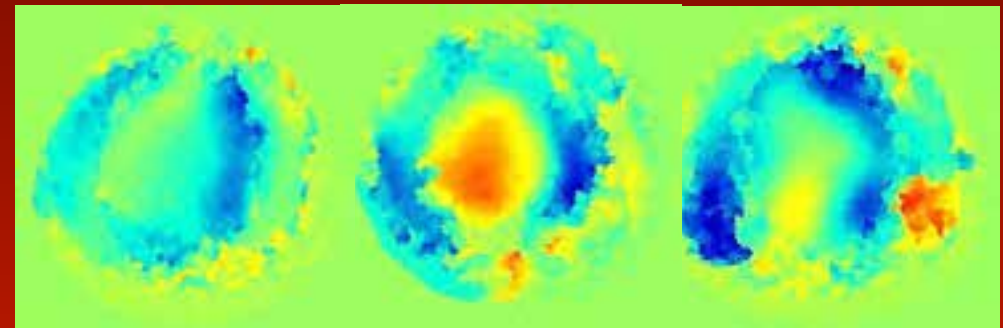
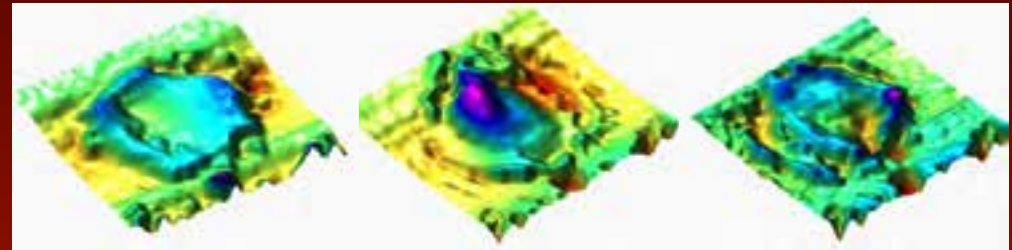
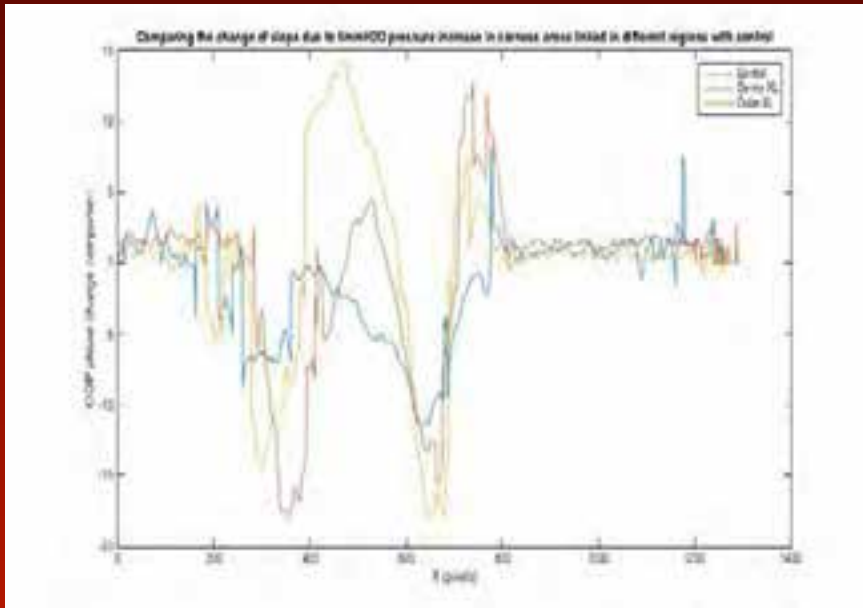
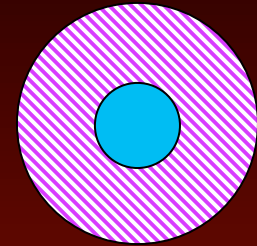
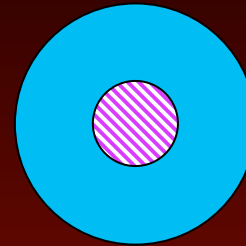
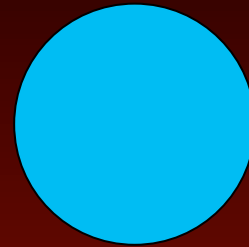


John Tyrer

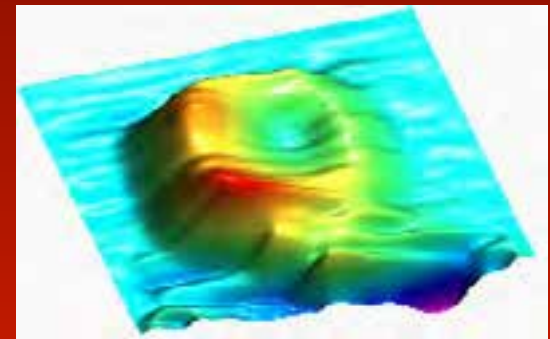
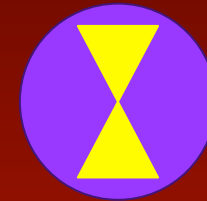
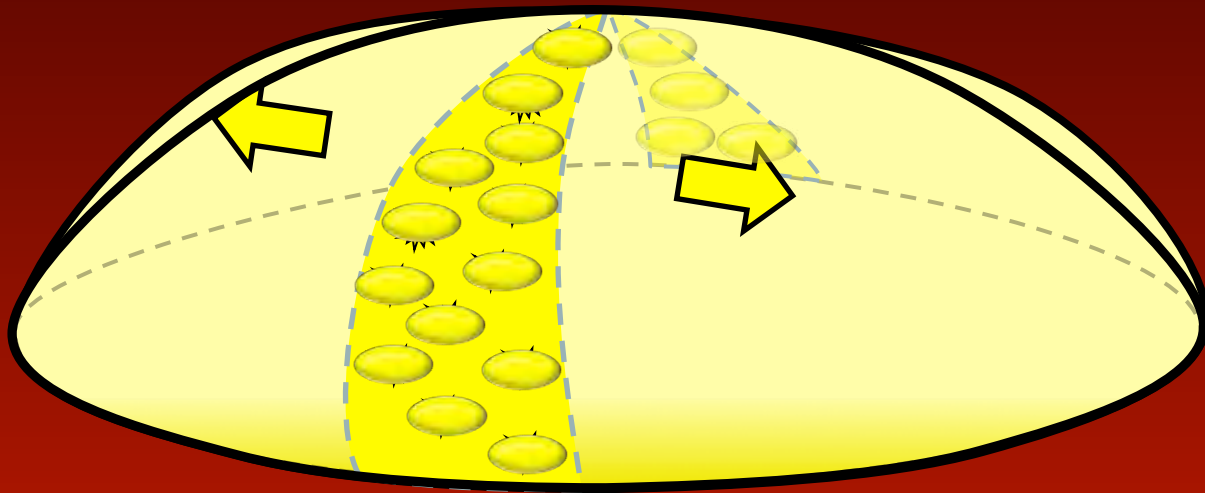
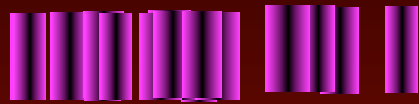




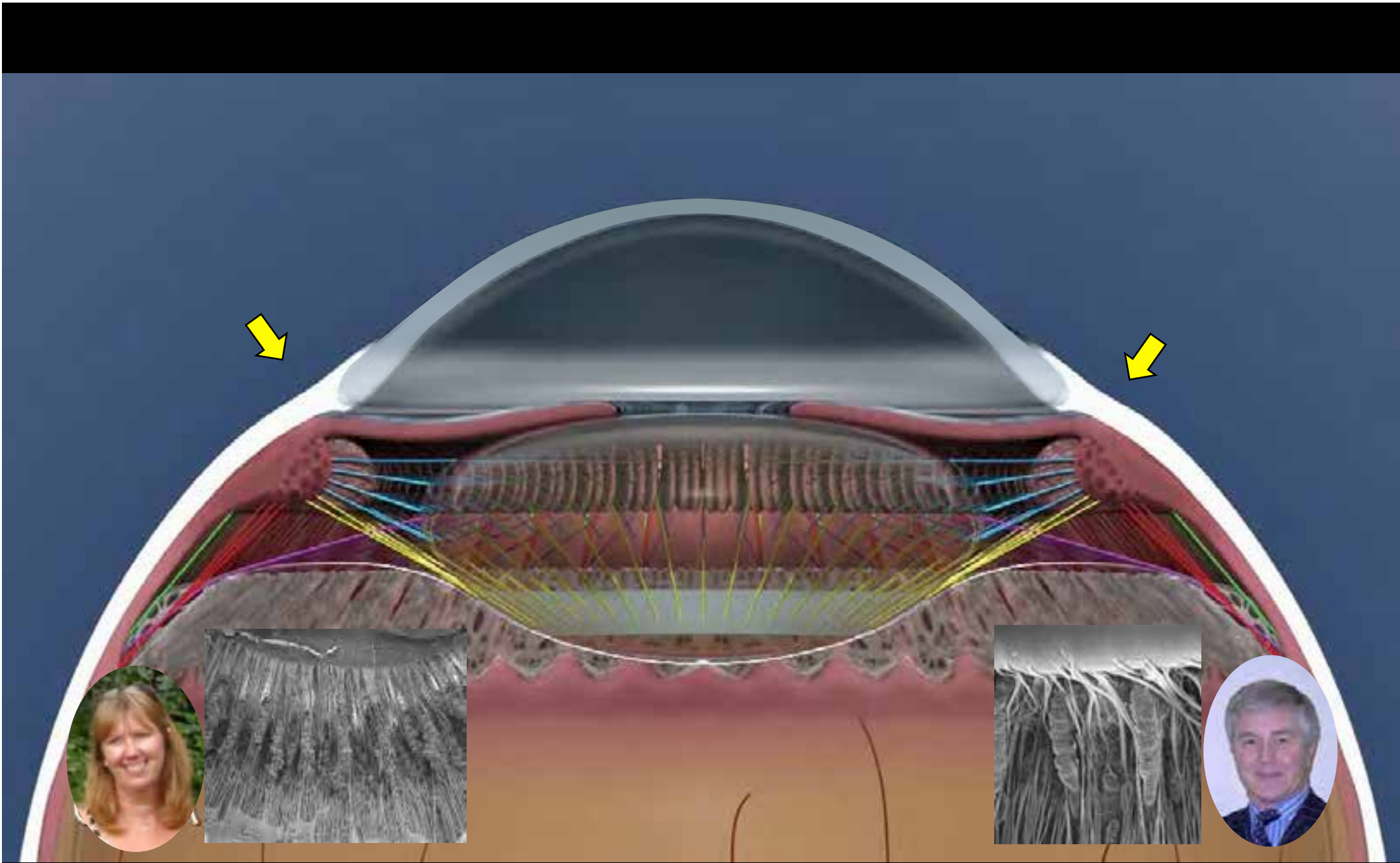
Biomechanics of Topographically Cross-linked corneas



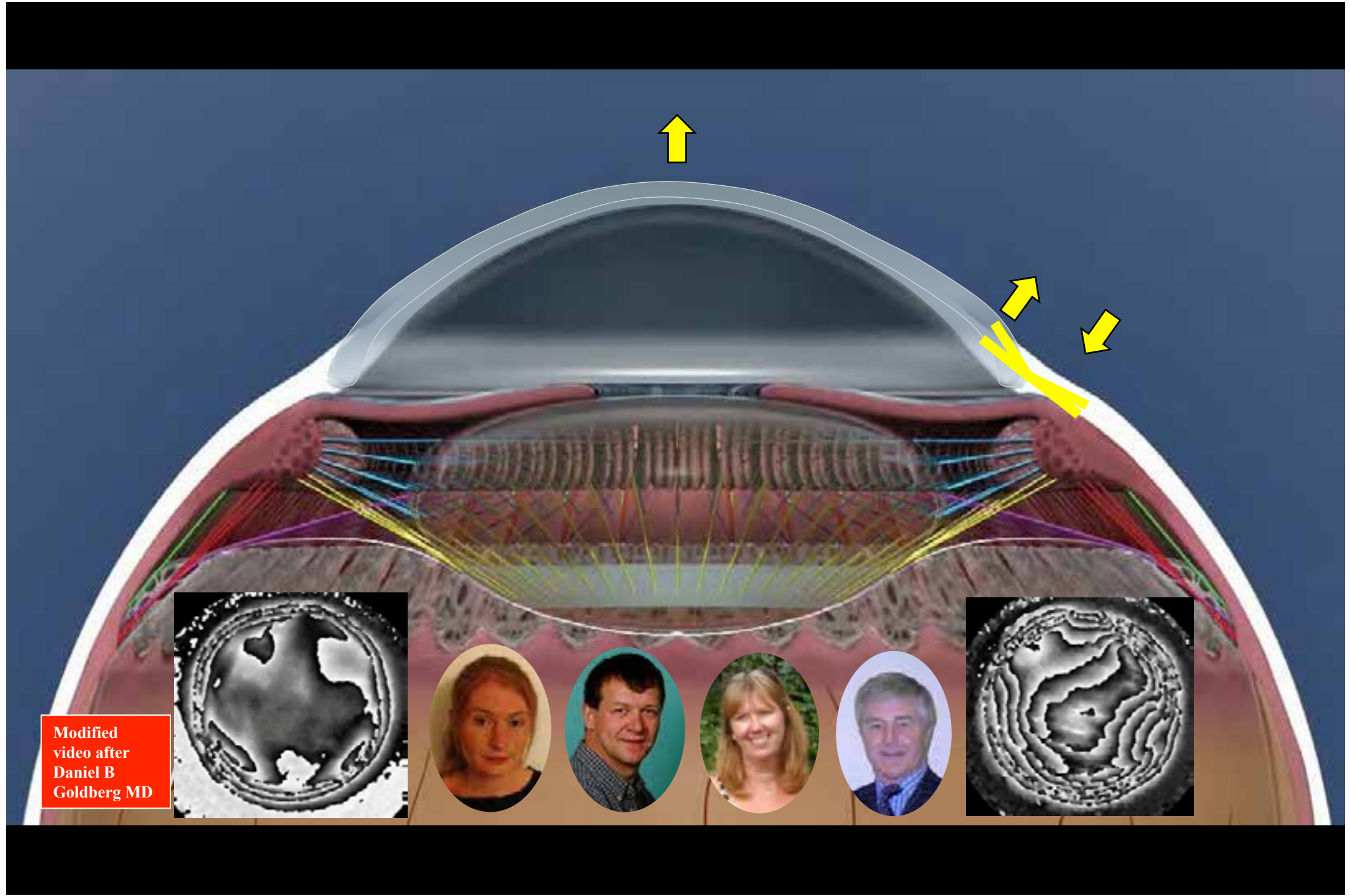
Analysis of Topographical Cross linking







Video courtesy of Daniel B Goldberg MD
Computer-animated model of accommodation and presbyopia (CAMA) J. Cat Ref Surg 41:2 437-445 2015



Modified
video after
Daniel B
Goldberg MD