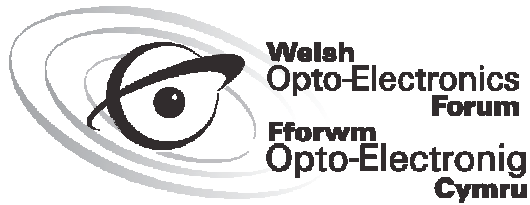


WOF Biophotonics Special Interest Group



Report on foundation meeting held at the University of Glamorgan

26 July 2006

- Outputs of the meeting
- Programme ideas
- An Irish perspective
- Funding for collaboration with Eastern Europe

Mission Statement

The Biophotonics and medical devices special interest group of the WOF (BSIG) exists to organize

- **Funding:**
Develop and maintain contacts with public sector, private sector and charitable funding sources for R&D and market development in the UK & Overseas.
- **Networking:**
Facilitate Business to Business and Business to Education, Clinical and Academia partnerships within Wales, UK, EU and wider Europe in order for the partners
- **Integration:**
Provide a network along the supply chain from technology provider to application so that members can develop Routes to Market.
- **Market intelligence:**
Provide information on commercialization, sales and marketing methods
- **Influence:**
Make representations to Wales, UK and other regulatory authorities about issues arising from the use of optical technology in the appropriate field.
- **Education:**
Incorporating Biophotonics education needs into the photonics academy. Provide Regulatory and commercial education.
- **Economic development:**
Anchor the High-Tech based industry in the Region and encourage inward investment. Exploiting a portfolio of technology and know-how in Wales. Establish solutions to measurement problems.

Programme ideas as advanced by the meeting

The following items were suggested as suitable for the BSIG programme.

- **Web Page**
 - The SIG should establish a dedicated web page. The page should; show the mission statement, include links to members and other useful resources and give details of project case studies.
- **Meetings**
 - The SIG should hold meetings that target clinicians, biologists, veterinarians, physicists, engineers and marketing personnel.
- **List of Expertise**
 - A relational database of local expertise should be created and maintained.
- **Posters to advertise meetings**
 - Posters should be provided to advertise meetings as list based email notification is not always effective.
- **Virtual Centre for Biophotonics**
 - A Virtual Centre for Biophotonics promoting the local skills base should be formed.
- **Technology Translator**
 - A technology translator should be appointed.
- **Ready Made Audiences**
 - Attempts should be made to involve ready made audiences in other trade and professional bodies.

Biophotonics in Ireland

Finding a partner

Glamorgan 06 July 2006

Kevin Donnelly
Industrial Technologies Programme
Applied Research and Commercialisation Division

EI is a business development agency with the goal

“To accelerate the development of world-class Irish companies to achieve strong positions in global markets resulting in increased national and regional prosperity”

Technology development is a key driver
Internationalisation is a key driver

Some Advice

Always read your e-mails properly

Don't commit to anything without reading your e-mails

Don't believe verbal assurances however plausible

Don't underestimate how long a 10 minute talk takes

Have a backup plan

Finding a biophotonics partner in Ireland

The short answer

Call me

kevin.donnelly@enterprise-ireland.com

00 353 1 808 2505

00 353 87 929 6675

Finding a biophotonics partner in Ireland

The longer (& better) answer

Contact the

National Biophotonics and Imaging Platform of Ireland

www.rcsi.ie/research2/imaging_platform

Prof Brian Harvey (RCSI) (TBC)

Prof Brian MacCraith (DCU) (invited contact)

National Biophotonics and Imaging Platform of Ireland

Coordinated proposal for PRTL funding

PRTL = large scale infrastructural funding

The Partners

Dublin Molecular Medicine Centre (UCD, TCD, RCSI)

DCU, NUIM, DIT, UCC, UL, NUIG

DTI, QUB, CNRS

National Biophotonics and Imaging Platform of Ireland

Major themes

- **Molecular Proteomics and Genomics Imaging**
 - Protein and Gene chip array image analyses.
- **Molecular Cellular Imaging –**
 - protein-protein interaction, FRAP, FRET, FISH
- **Cellular –**
 - Confocal Laser Scanning Microscopy, Bi-photon LSM, Atomic Force Microscopy,
 - Infrared and UV spectrofluorescence microscopy.
- **3-D reconstructive fluorescent & GFP histology p.m.**
- **Small Animal Transgene Imaging**
 - GFP, YFP imaging in vitro -, fMRI in vitro Diagnostic Patient Imaging fMRI
- **Software and hardware development**

National Biophotonics and Imaging Platform of Ireland

Inviting joint research in

Translational Medicine

Neuroscience

Respiratory Medicine

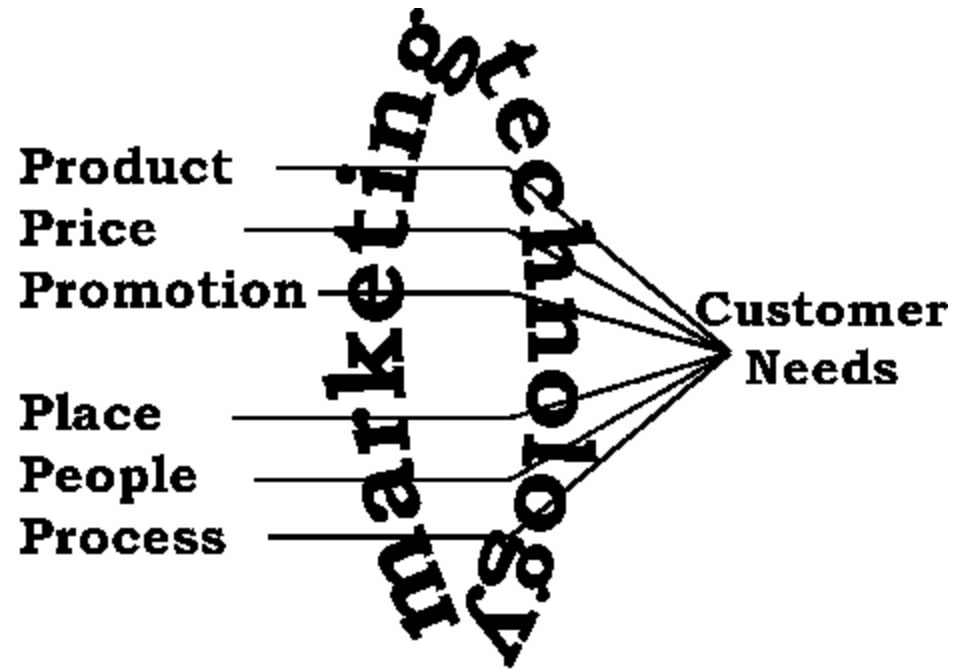
Cancer

CardioVascular

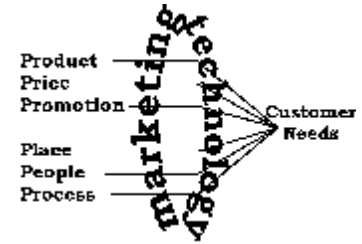
Inflammation

Thank you for your attention

Customer Refocus



BMD SIG Pontypridd

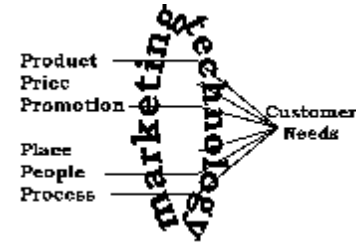


Z Examples of work at a Russian University

- X Laser doppler interferometry
- X Interference
- X Microstructures

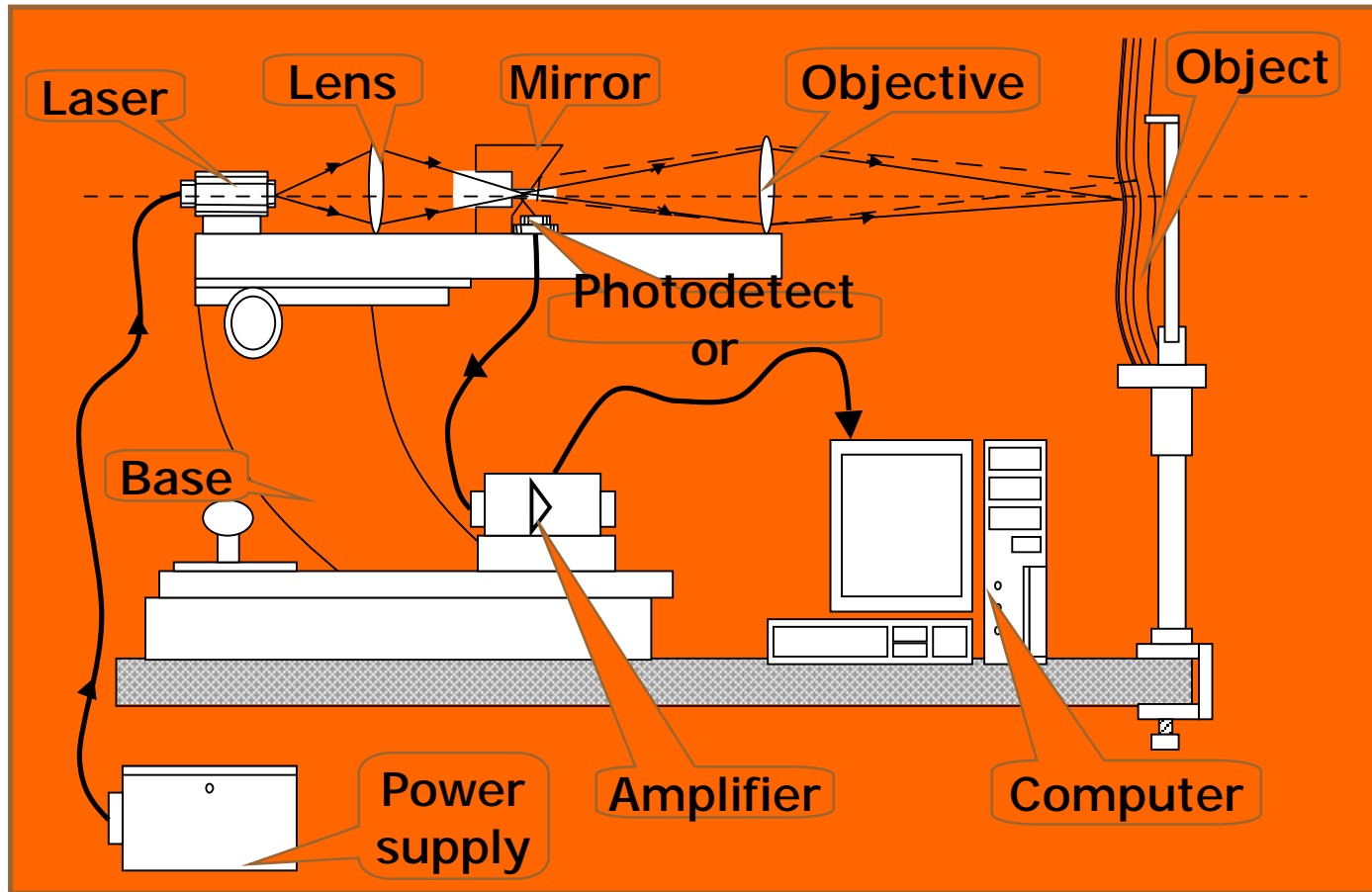
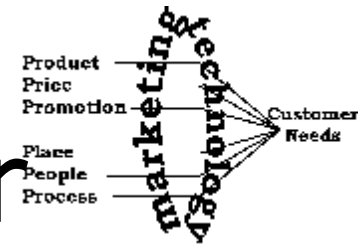
Z Funding Mechanisms

Blood microcirculation in tissue

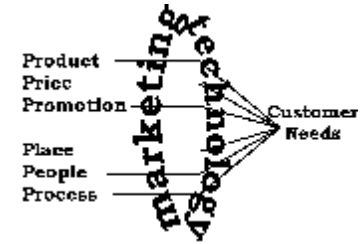


- z Instruments for laser diagnostics of blood microcirculation disorders

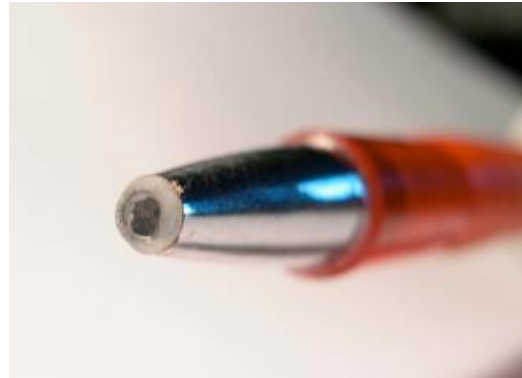
Non-contact Laser Doppler Flowmeter



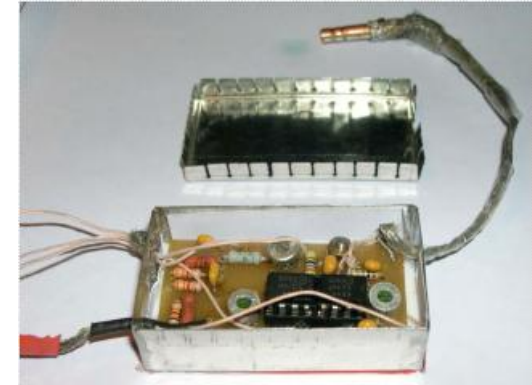
Handheld Probe



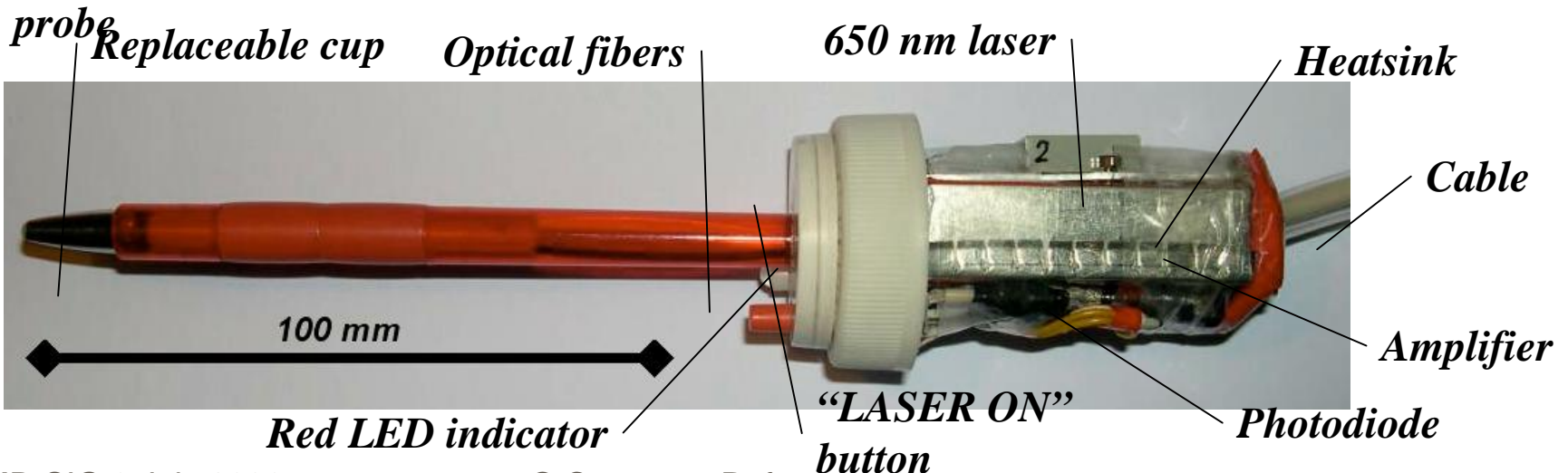
*Laser Doppler
Flowmeter handheld
probe*



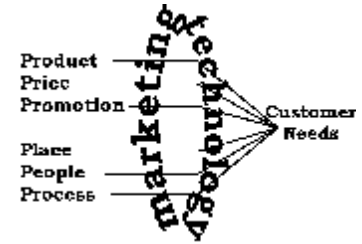
3 mm diameter probe tip



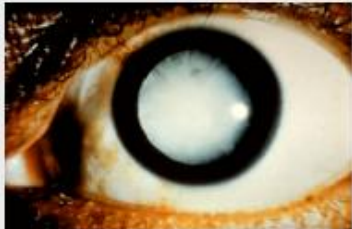



Photocurrent amplifier

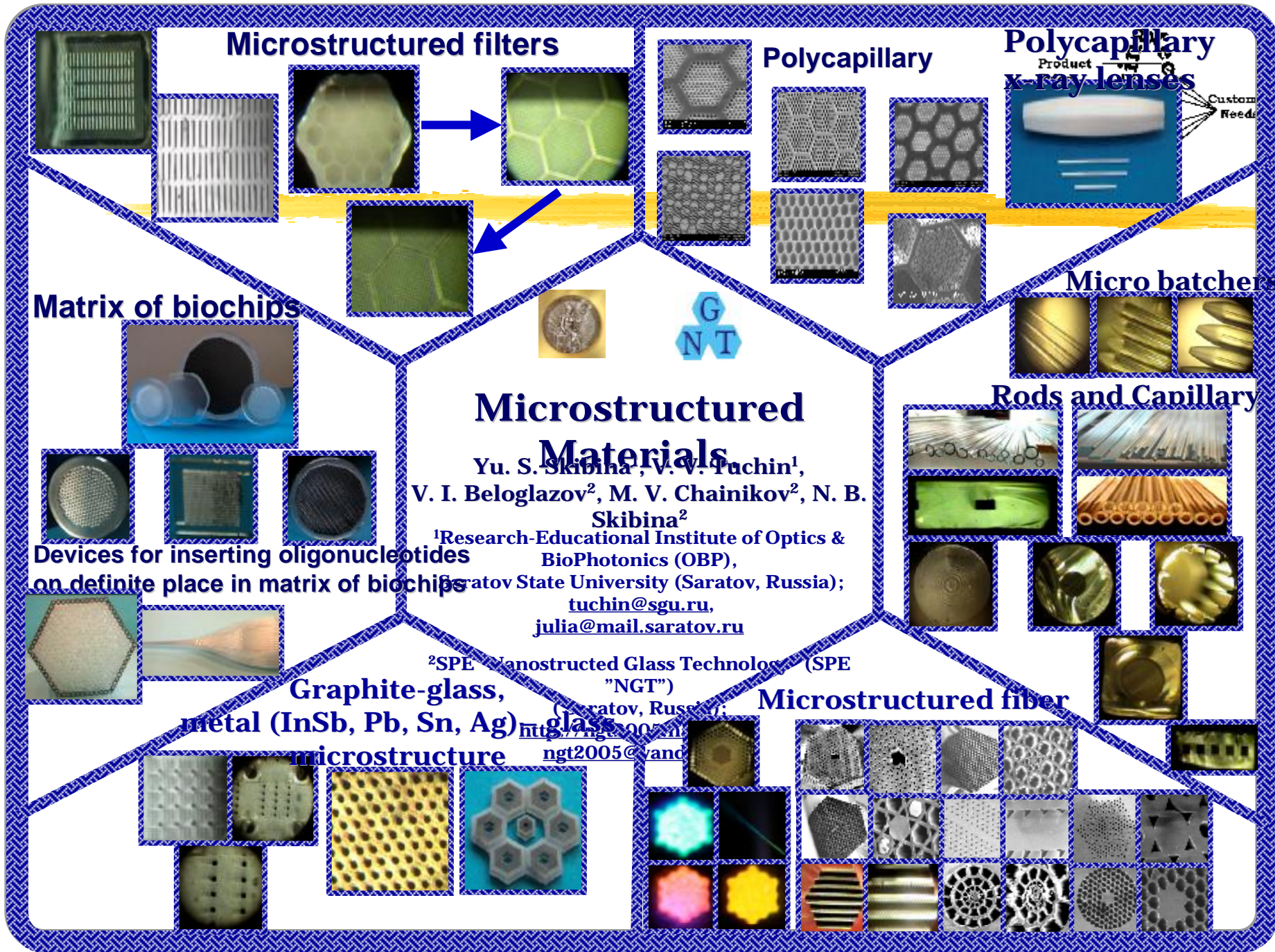


Chromoretinometry – The New Method of Cataract Diagnostics

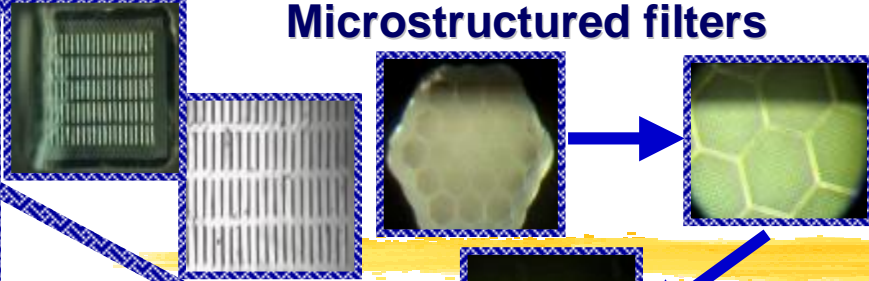


	
Early senile cataract	Interference pattern modeled using early senile cataract lens
	
Mature senile cataract	Interference pattern modeled using mature senile cataract lens

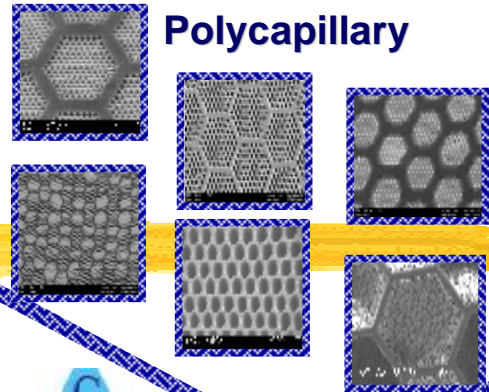
Optical coherence analysers



Microstructured filters



Polycapillary



Polycapillary x-ray lenses



Matrix of biochips



Devices for inserting oligonucleotides on definite place in matrix of biochips

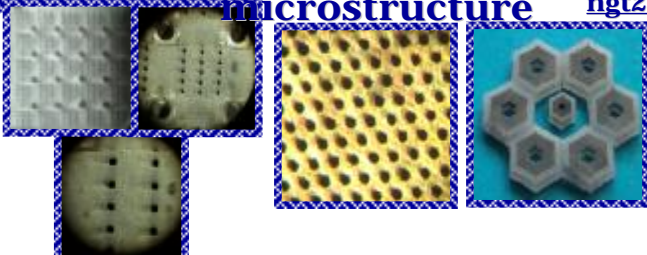
Microstructured Materials

Yu. S. Skibina¹, V. V. Tuchin¹,
V. I. Beloglazov², M. V. Chainikov², N. B. Skibina²

¹Research-Educational Institute of Optics & BioPhotonics (OBP),
Saratov State University (Saratov, Russia);
tuchin@sgu.ru,
julia@mail.saratov.ru

²SPE Nanostructured Glass Technology (SPE "NGT")
(Saratov, Russia);
<http://ngt2005.ru/>
ngt2005@yandex.ru

Graphite-glass, metal (InSb, Pb, Sn, Ag) microstructure



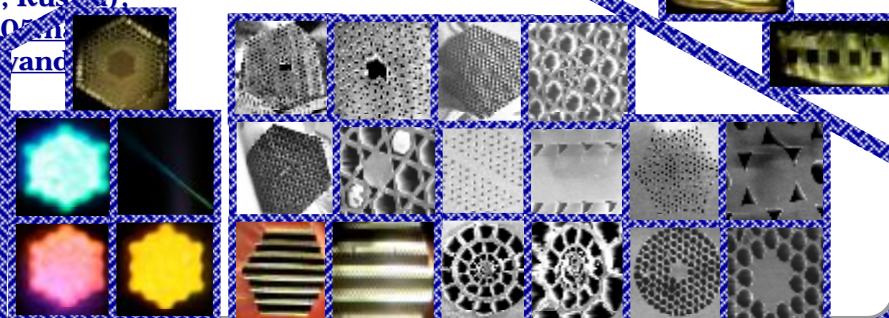
Micro batches



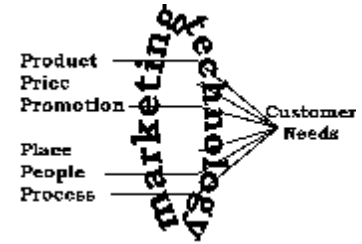
Rods and Canillary



Microstructured fiber



Funding for work with Eastern Europe

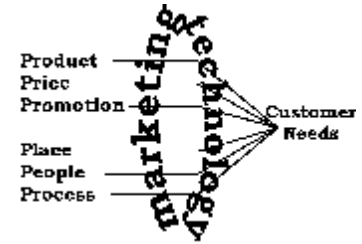


z NATO

y Science for Peace/Security through Science

z TACIS

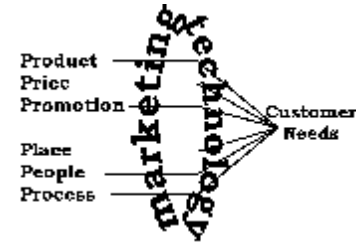
NATO - Priority Research Topics



Z Defence against terrorism

- y Rapid Detection of CBRN Agents or Weapons, and Rapid Diagnosis of their effects on people
 - x **Methods of detection (e.g., chemical and biosensors, multisensor processing, gene chips)**
- y Physical Protection against CBRN agents
- y Decontamination of CBRN agents
- y **Destruction of CBRN agents and weapons (e.g., chemical and vaccine technologies)**
- y Medical Countermeasures
- y **Explosive Detection**
- y Eco-Terrorism Countermeasures
- y Computer Terrorism Countermeasures

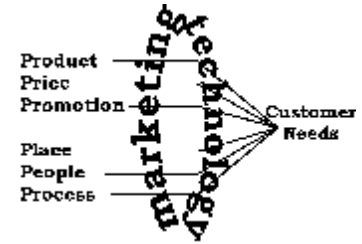
NATO - Priority Research Topics 2



Z Other threats to security

- y Environmental Security (e.g., desertification, land erosion, pollution, etc.)
- y Water Resources Management
- y Management of Non-Renewable Resources
- y Modeling Sustainable Consumption (e.g., food, energy, materials, fiscal measures and environmental costings)
- y Disaster Forecast and Prevention
- y Food Security
- y Information Security
- y Human and Societal Dynamics (e.g. new challenges for global security, economic impact of terrorist actions, risk assessment, management of science, science policy, security-related political science, and international relations in general)

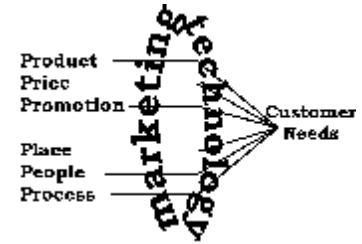
NATO Grants



- z Advanced research workshops
- z High level tutorials
- z Collaborative linkage grants
- z Expert Visits
- z Science for Peace
- z Reintegration Grants
- z Computer Networking support

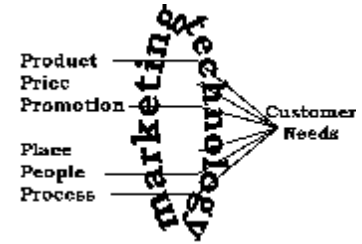
No upper or lower limit. Can be 100%

Qualifying for NATO



- z A partner from NATO and one from other qualifying countries
 - y Partner countries
 - x FSU, most non NATO EU countries, Switzerland
 - y Mediterranean Dialogue Countries
 - x Algeria , Egypt , Israel , Jordan , Mauritania , Morocco and Tunisia .

TACIS

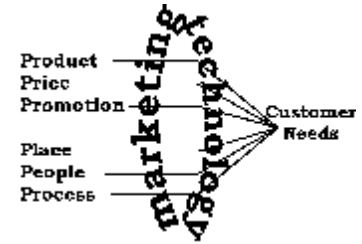


- z EU programme
 - y Technical Assistance to CIS
 - y Varies by country

- z Russia
 - y Support for institutional, legal and administrative reform
 - y Support to the private sector and assistance for economic development
 - x *Support to the integration of Russia into the international economy*
 - y Support for addressing the social consequences of transition

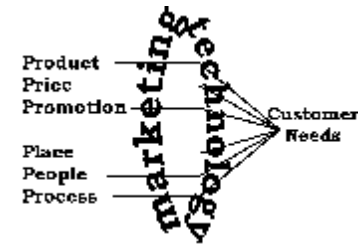
- z New programme to be announced for 2007

Customer Refocus - Business



- z Consulting network founded by Philip Owen, trading since 1994
- z Processes
 - y New products & services
 - x Market research based business strategy
 - y Technology transfer, licensing & spin out
 - y Acquisitions, Fundraising & Due Diligence
- z Industries
 - y Data storage, transmission and output (displays, printing)
 - y Some classical bioscience (medical devices, plant growth, odours)
 - y Document services, debt collection, electronics manufacture, Automotive electronics, mechatronics

Customer Refocus - Clients



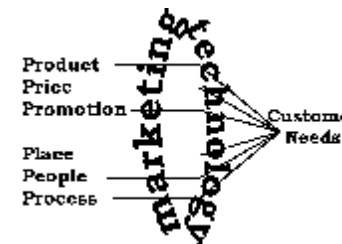
Z Other consultancies

- y Arthur D Little
 - x Mostly European Industrials
- y Cambridge Consultants Ltd
 - x Mostly UK high tech
 - x Venture Capitalists
- y JRA Aerospace & Technology plc
 - x Space Agencies & Military research
 - x Technology brokers
 - x Venture Capitalists
- y Macarthur Stroud International Ltd
 - x IT hardware blue chips
 - x Venture Capitalists

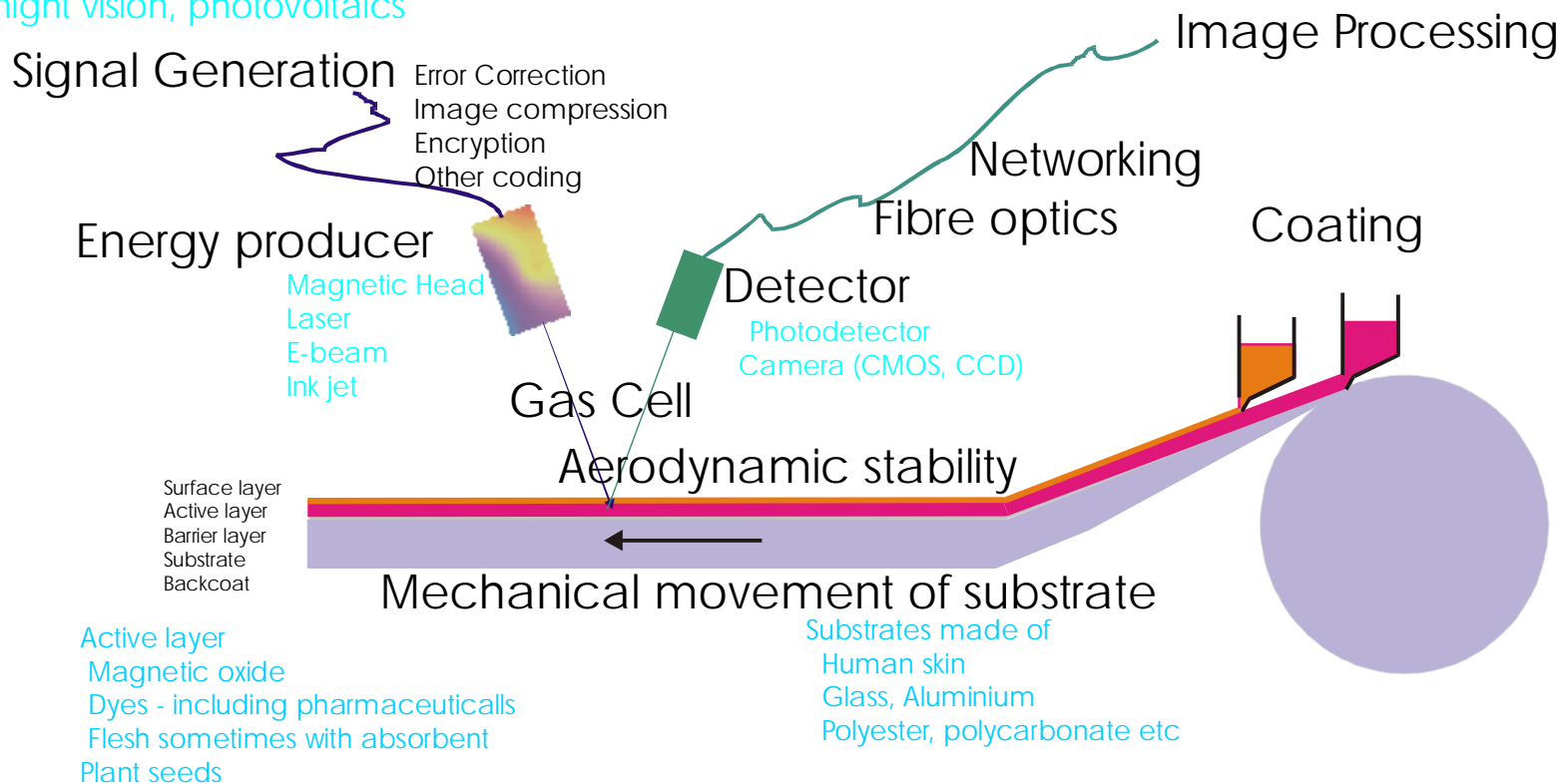
Z Direct

- y Department of Trade & Industry
- y General Physics Institute, Moscow
- y Growlight Ltd
- y Inject, Saratov
- y Laser Applications Unlimited Ltd
- y Laser Optical Tape Systems Inc.
- y NS3
- y Spectrum Technology plc
- y University of Glamorgan
- y University of Bath
- y Saratov State University
- y Volga Research Institute, Saratov
- y Welsh Opto-electronic Forum
- y Welsh Development Agency

Technical Coverage



We deal with a common set of technologies applying to
 Disk drives, tape drives, displays, printing, marking, micromachining
 ,surface inspection system, medical devices, spectroscopy, free space optics,
 night vision, photovoltaics



Active layer
 Magnetic oxide
 Dyes - including pharmaceuticals
 Flesh sometimes with absorbent
 Plant seeds

Substrates made of
 Human skin
 Glass, Aluminium
 Polyester, polycarbonate etc

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