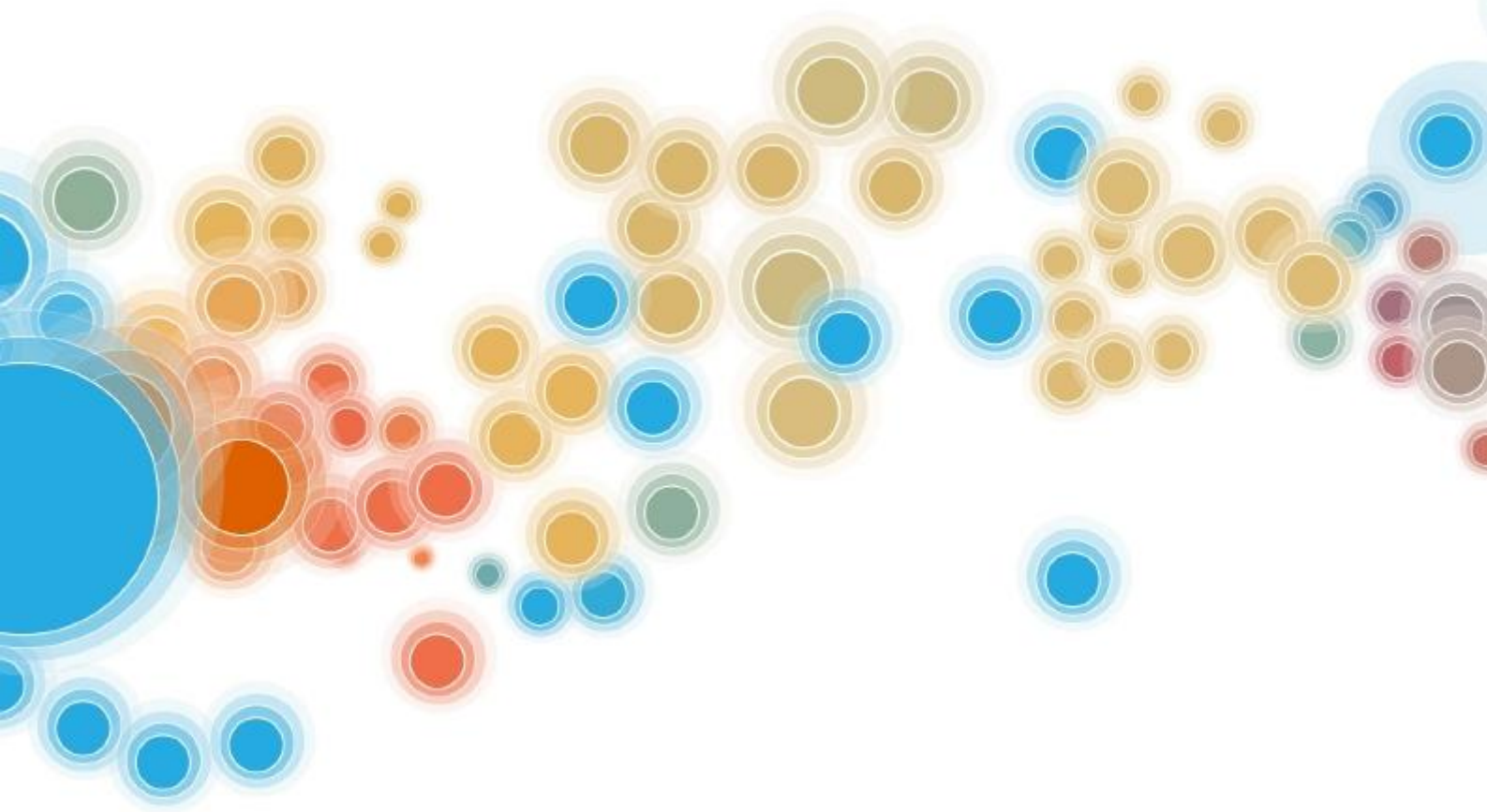


# BIOPHOTONICS AND IMAGING GRADUATE SUMMER SCHOOL

JUNE 7<sup>th</sup> – 13<sup>th</sup> 2012, GALWAY, IRELAND

*Course corresponds to 5 ECTS credits*



## Chair

Martin J. Leahy

## Technical Committee · Programme Coordinator

Marie-Louise O'Connell

## Organising Committee

Peter Owens · Brian Harvey · Stefan Andersson-Engels · Hugh Byrne · Valery Tuchin ·  
Kirill Larin · Chris Dainty · Cornelia Denz · Peter Dockery · Alan Ryder · Paul Whelan ·  
Jürgen Popp



# DAY 1

**Thursday – June 7th**

**Morning-Afternoon: Arrival of participants from:**

1. Dublin
2. Shannon
3. Cork

international airports to BIGSS 12 conference room SC200A (see map) in the Physics Department of NUI Galway.

**Afternoon:**                      **Arrival:** Physics Department NUI Galway Room SC200A

## **Activities**

- Student registration
- Student poster hanging
- Accommodation check-in: Corrib Village (adjacent to campus)

**17:00-21:00**                      Wine reception and official conference welcome at Moffetts

## DAY 2

Friday – June 8th

07:30-09:00	Breakfast
	<b>Wolfgang Drexler: <i>Optical Coherence Tomography (OCT): Basics, Applications and Multimodal</i></b>
09:00-10:00	Part I: OCT: Basic technologies (resolution)
10:00-11:00	Part II: OCT: Basic technologies (speed)
11:00-11.30	Coffee break
11:30-12:30	Part III: OCT: Applications (multispectral, penetration)
12:30-13:00	Part IV: Contrast enhanced, functional, multimodal OCT
13:00-14:00	Lunch – Moffett's
14:00-17:00	<b>Galway City and Coastal Tour</b>
17:00-18:00	Dinner
	<b>Vasilis Ntziachristos: <i>Multi-spectral optical and optoacoustic imaging</i></b>
18:00-20:00	Part I: Multi-spectral fluorescence imaging and tomography
20:00-20:30	Coffee Break
20:30-22:30	Part III: Multi-spectral opto-acoustic tomography

## DAY 3

### Saturday – June 9th

**Michael Kolios: *From light scattering to light absorption: using principles from ultrasound imaging to guide OCT and photoacoustic imaging development.***

09:00-10:00 Part I: OCT/Ultrasound signal processing

10:00-11:00 Part II: Speckle de-correlation

**11:00-11:30 Coffee Break**

11:30-12:30 Part III: Photoacoustic and acoustic microscopy

12:30-13:00 Part IV: Photoacoustic and acoustic microscopy

**13:00-14:00 Lunch – Moffett's**

**14:00-17:00 *Afternoon free***

**17:00-18:00 Dinner**

**Vladimir P. Zharov: Laser Optoacoustic Spectroscopy**

18:00 -19:00 Part I: Photoacoustic flow cytometry: principles and new contrast nanoagents

19:00 -20:00 Part II: In vivo photoacoustic flow cytometry: biological and medical applications

**20:00-20:30 Coffee break**

20:30-21:30 Part III: Nonlinear photoacoustic spectroscopy beyond the spectral limit

21:30-22:30 Part IV: Photothermal microspectroscopy

## DAY 4

Sunday – June 10<sup>th</sup>

07:30-09:00	Breakfast
	<b>Gabriel Popescu: <i>Quantitative Phase Imaging of Cells and Tissues</i></b>
09:00 -10:00	Part I: Groundwork: Fourier optics, light scattering, microscopy
10:00 -11:00	Part II: Principles of quantitative phase imaging (QPI)
11:00- 11:30	Coffee break
11:30-12:30	Part III: Spatial light interference microscopy (SLIM)
12:30-13:00	Part IV: Applications of QPI
13:00-14:00	Lunch – Moffett's
14:00-17:00	<i>Afternoon free</i>
17:00-18:00	Dinner
	<b>Cornelia Denz: <i>Light trapping for Biophotonic Applications</i></b>
18:00- 19:00	Part I: Light Propagation and Beam Shaping
19:00- 20:00	Part II: Optical Tweezers (and Applications)
20:00-20:30	Coffee Break
20:30-21:30	Part III: Holographic Optical Tweezers (and Applications)
21:30-22:30	Part IV: Recent advances in optical micromanipulation

## DAY 5

Monday – June 11<sup>th</sup>

07:30-09:00	Breakfast
	<b>Anita Mahadevan-Jansen: <i>Optical Techniques for Diagnosis and Guidance of Therapy</i></b>
09:00-10:00	Part I: State-of-the-art of optical techniques for <i>in vivo</i> detection
10:00-11:00	Part II: Challenge-based solution – guidance of cancer therapy
11:00-11.30	Coffee break
11:30-12:30	Part III: Clinical Instrumentation
12:30-13:00	Part IV: Study Design – solving a medical/clinical problem
13:00-14:00	Lunch – Moffett's
14:00-17:00	<b>Poster Assessment:</b> Students will be divided into two groups and address questions from other students, speakers, sponsors and researchers during their allotted time.
14:00 - 15:00	Group A
15:00–16:00	Refreshments
16:00 - 17:00	Group B
17:00-18:00	Dinner
	<b>Tayyaba Hasan: Imaging and Photodynamic Therapy: Mechanisms, Monitoring and Optimisation</b>
18.00-19:00	Part I: Introduction: basics and principles
19:00-20:00	Part II: Photophysical and biological mechanisms of PDT
20:00-20.30	Coffee break
20:30-21:30	Part III: Development of therapies for diagnostic online monitoring
21:30-22:30	Part IV: Targeted delivery of photoactivatable molecules

## DAY 6

Tuesday – June 12<sup>th</sup>

07:30-09:00

Breakfast

Hugh Cormican: *Commercialising Your Research*

09:00-10:00

Part I: Entrepreneurship

10:00-11:00

Part II: Translating your research into the market

11:00-11.30

Coffee break

Olympus-sponsored demonstration

13:00 - 14:00

Lunch

14:00 – 17:00

Graduation ceremony

- Presentation: speaker gifts and student certificate
- Poster prize presentation (Sponsored by [Mason Tech](#))
- Removal of posters from conference hall

19:00 - late

Activities: Farewell Medieval Banquet and Durty Nellie's - bus departing Corrib Village

## DAY 7

Wednesday – June 13<sup>th</sup>

07:30-09:00

Breakfast

09:00-10:00

Accommodation check out from Corrib Village

10:00 - Midday

DEPARTURE

**Transport:** shuttles available from Corrib Village to city centre where you can get a bus or train to international airports.



