



# International workshop on Constructal Theory of Shape and Structure

## Invited Lecturers

Adrian Bejan, Duke University, United States of America.  
Sylvie Lorente – Institut National des Sciences Appliquées, France.  
Antonio Miguel – University of Évora, Portugal.  
Heitor Reis - University of Évora, Portugal.  
Ed Walsh – University of Limerick, Ireland.

## Date

22<sup>nd</sup>-23<sup>rd</sup> June 2006.

## Location

Hosted by the Stokes Research Institute ([www.stokes.ie](http://www.stokes.ie)) at the University of Limerick. The University of Limerick is situated on the river Shannon 3 kilometers outside Limerick city in west of Ireland.

## Chair of Local Organizing Committee

Ed Walsh,  
ER3-019, Stokes Research Institute,  
University of Limerick.  
Email: [edmond.walsh@ul.ie](mailto:edmond.walsh@ul.ie)

## Workshop Description

The last two decades have marked important changes in how thermodynamics is taught, researched and practiced. The generation of flow configuration was identified as a natural phenomenon. The new physics principle that covers this phenomenon is the constructal law, which was formulated in 1996. The geometric structures derived from this principle for engineering applications have been named constructal designs. The thought that the same principle serves as basis for the occurrence of geometric form in natural flow systems is constructal theory.

This workshop demonstrate the wide applicability of constructal design ranging from it application in porous media and heat transfer through to providing a better understanding of turbulence. The course is aimed at all those working in this new and exciting area of science at both advanced and student levels. The invited lecturers are internationally recognized and the course will be chaired by the founder of this new theory, Professor Adrian Bejan.

**Constructal Workshop**  
University of Limerick, 22<sup>nd</sup> – 23<sup>rd</sup> June 2006

**Thursday 22<sup>nd</sup>**

|               |                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------|
| 8.30 - 9.00   | Registration:<br><br>Brief Welcome and Program                                                       |
| 9.00 - 10.00  | The constructal law: the phenomenon of generation of flow configuration everywhere – <b>A. Bejan</b> |
| 10.00 - 11.00 | Tree shaped flow networks – <b>S. Lorente</b>                                                        |
| 11.00 - 12.00 | Coffee Break                                                                                         |
| 12.00 - 13.00 | Constructal law as a fundamental principle – <b>H. Reis</b>                                          |
| 13.00 - 14.15 | Lunch Break                                                                                          |
| 14.15 - 15.15 | Constructal principle of transition in fluid flows – <b>E. Walsh</b>                                 |
| 15.15 - 15.45 | Coffee Break                                                                                         |
| 15.45 - 16.45 | Constructal design in nature: geophysical flows, animal design – <b>A. Miguel</b>                    |
| 16.45 - Close | Discussions.                                                                                         |

**Friday 23<sup>rd</sup>**

|               |                                                                                                                                 |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| 9.00 - 10.00  | Biologic flow architectures. The case of the lung. – <b>H. Reis</b>                                                             |
| 10.00 - 11.00 | Optimal electrokinetic decontamination of porous structures - <b>S. Lorente</b>                                                 |
| 11.00 - 11.30 | Coffee Break                                                                                                                    |
| 11.30 - 12.30 | Constructal geometry and design of aerosol deposition processes - <b>A. Miguel</b>                                              |
| 12.30 - 13.30 | Lunch Break                                                                                                                     |
| 13.30 - 14.45 | Constructal design in engineering: multiple scales, multiple objectives, and performance vs. freedom to morph - <b>A. Bejan</b> |
| 14.45 - Close | Discussions                                                                                                                     |

**Registration Download doc**

**International workshop on  
Constructal Theory of Shape and Structure**  
A Two Day Short Course in Limerick, Ireland (June 22-23, 2006)

**\*COURSE REGISTRATION FORM\***

*(fill in this form and e-mail to [edmond.walsh@ul.ie](mailto:edmond.walsh@ul.ie))*

Name(s) of Participant(s):

Job Title or Ph.D. Student Status:

Organization or University Name:

Mailing Address:

City:

State/Country/Postal Code:

e-mail address:

Complete and return this form as WORD file or pdf file by e-mail to: Ed Walsh at [edmond.walsh@ul.ie](mailto:edmond.walsh@ul.ie); fax: 353-61-202393; Tel: 353-61-213181

**Course Inscription Fee:** Course Inscription Fee: 150 Euro for each participant, except for Ph.D. students there is a discount rate of 80 Euro per person. Registration deadline is June 1<sup>st</sup>. Course fee includes refreshments during break periods exclusive of lunch. Course fee does **not** include hotel accommodation.

**Payment can be made by cash/cheque/draft transactions made payable to University of Limerick posted to**

Fionnuala O Connell  
Stokes Research Institute  
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For additional details contact Ed Walsh e-mail: [edmond.walsh@ul.ie](mailto:edmond.walsh@ul.ie)

**COURSE LOCATION AND TRAVEL INFORMATION**

**(Participants will be informed of the venue and provided with campus map upon registration, please see [www.ul.ie](http://www.ul.ie) for additional campus information)**

An e-mail with the location of the course room on campus and how to arrive there will be sent before the course to each participant. Participants should arrive in time for the registration period on Thursday.

**HOTEL REGISTRATION INFORMATION**

**(Participant must contact a hotel or Dromroe village to make his/her own hotel room reservation)**

The organisers recommend the following hotels and B&B accommodation which are both within walking distance of the workshop venue:

<http://www.ul.ie/conference/dromroe.htm>

<http://www.castletroy-park.ie/welcome.html>

<http://www.kilmurrylodge.com/index.htm>