

A talk “Constructal Theory and Its Applications” by renowned Professors

A Faculty Based Seminar was presented by Professor Adrian Bejan and Professor Sylvie Lorente on 27 January 2010. Over 140 audiences attended.



[Power point file of Prof. Bejan](#)

[Power point file of Prof. Lorente](#)

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: “For a finite-size flow system to persist in time (to survive) its configuration must evolve (morph) in time in such a way that it provides easier flow access to its currents.” 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. The origin of the generation of geometric form rests in the balancing (or distributing) of the various flow resistances through the system. A real system owes its irreversibility to several mechanisms, most notably the flow of fluid, heat and electricity. The effort to improve the performance of an entire system rests on the ability to balance all its internal flow resistances, together and simultaneously, in an integrative manner. This seminar will present Professor Bejan’s recent work and breakthrough on this subject area.

The Speakers :

Professor Adrian Bejan, Duke University

Professor Bejan got his BS, MS and PhD from Massachusetts Institute of Technology (MIT). He is now the J.A. Jones Professor of Mechanical Engineering. His research covers a wide range of topics in thermodynamics, heat transfer, fluid mechanics, convection and porous media. More recently, he developed the constructal law of design in nature. He is ranked among the 100 most highly cited authors worldwide in engineering (all fields, all countries), the Institute of Scientific Information, 2001. Professor Bejan has received 15 honorary doctorates from universities in 10 countries.



Lecture by Professor Bejan

Professor Sylvie Lorente, INSA Toulouse, France

Professor Lorente got her BS, MS and PhD from INSA Toulouse, France. She is at Laboratory of Materials and Durability of Constructions, INSA-UPS, Department of Civil Engineering, National Institute of Applied Science, Toulouse, France. Her research interests encompass vascularized materials, constructal theory, porous media, fluid mechanics, heat and mass transfer.



Lecture by Professor Lorente



Presentation of Souvenir