FLORIDA INTERNATIONAL UNIVERSITY

BIOMEDICAL ENGINEERING LECTURE SERIES

FRIDAY, MARCH 9, 2007, 10:30AM

FIU Engineering Center
10555 West Flagler Street
Room 2300

DESIGN AND MANUFACTURING OF MEDICAL DEVICES BY USING NUMERICAL METHODS AND VIRTUAL REALITY

Biomedical devices are often designed by using computer simulation and numerical methods such as Finite Elements and Boundary Elements. Very careful simulations must be done when dealing with living materials such as bone, cartilages and arteries. As well the anatomic models of these situations are often very complex, displaying meshes of more than several thousands of finite elements. We present and discuss some recent developments in designing and manufacturing biomedical devices (prostheses, cardiac valves) carried out in the National Bioengineering Institute at Caracas, Venezuela. Fields such as traumatology, cardiology, neurosurgery and orthopaedic are addressed and discussed. Some results from a virtual reality based surgery room are also presented.

MIGUEL CERROLAZA RIVAS, PHD

Dr. Cerrolaza is currently a Titular Professor of Postgraduate Studies at the Faculty of Engineering at Central University of Venezuela in the National Institute of Bioengineering. Dr. Cerrolaza has studied at various Universities, including Ecole Nationale des Ponts et Chaussees (Paris, France); Polytechnical University of Madrid (Spain), and Federal University of Rio de Janeiro (Brazil). He is a Member of the System for Researchers Promotion, Level III; Founder and President of Venezuelan Society for Numerical Methods in Engineering of the Enterprise CORPOREA C.A. Also, he is the Coordinator of the Committee for Bioengineering Postgraduate Studies at the Central University of Venezuela, Caracas. Dr. Cerrolaza has 3 patents, 2 published books, and outstanding 100 papers in the National and International Congresses. Dr. Cerrolaza has given over 30 lectures at Foreign and Local Universities and he is a member of Organizer Committees of more than 20 International Congresses and the International Association of Computer Mechanics Editorial Board.

Hosted by the Department of Biomedical Engineering
Funded by the Wallace H. Coulter Foundation