FLUID MECHANICS FOR THE FUNCTIONAL ASSESSMENT OF CARDIOVASCULAR DEVICES

Francesca M. Susin

Program: The course is aimed at givinge a survey of research approaches for the assessment of cardiovascular medical devices. Emphasis will be given to methods and techniques adopted for the analysis of hemodynamic performance of prosthetic heart valves. Topics that will be covered: Review of basic fluid mechanics concepts. Definition of hydrodynamic performance of artificial cardiac valves and ventricular assist devices. Local and global approaches in in-vitro and in-silico models. Cardiac overload. Blood particles damage. Pulse duplicator loops and experimental techniques.

References: Course Slides. Recent literature references will be proposed during lectures.

Examination and grading: Group homework assignment with final discussion.

Course details: The course will be offered on-line. Schedule: tuesday 12.30-14.30 and thursday 12.30-14.30. First lecture on January, the 10th; final lecture on February, the 7th. The link to the Moodle page of the course will be given during the first lecture.