Professor Eleuterio F. Toro will navigate us through systems of equations that have occupied four decades of his life, highlighting the role of these abstract human creations in aerospace sciences, geophysics, astrophysics, physiology and medicine. Emphasis will be placed on the importance of research on new algorithms to solve such equations and thus uncover their meaning, power and utility. The Lectio will finish with a medically-motivated application that reveals the largely unexplored role of anatomical malformations on some diseases, such as arterial hypertension and a range of neurological disorders affecting an ever increasing population worldwide.