



Prof. Rony Touma

Research Areas:

- Applied Mathematics
- development of central finite volume methods on Cartesian or unstructured grids
- systems of hyperbolic of conservation and balance laws in several space dimensions
- astrophysics, aerodynamics, hydrodynamics, and fluid dynamics

Which specific contribution does your scientific discipline offer to understand the most important global changes better?

The field of Applied Mathematics offers powerful tools for the understanding and simulation of real-life phenomena. In particular, numerical analysis, which combines the theory behind mathematics with the enormous computing capabilities of today's powerful computing machines; it allows the simulation of real life complex systems. My current research work is focused on the development of robust and accurate numerical tools for the simulation of problems arising in hydrodynamics such as dam breaches, flooding of rivers and inundations, and tsunami waves breaking on coastal regions and cities.

Do you see any differences in the scientific work and its devices regarding the focus of research between Lebanon and Germany?

Universities in the third world are still running late in the research field as compared to Western Universities. In the last twenty years or so, many Lebanese scientists who had completed their graduate studies in Western Universities returned back to Lebanon bringing with them their expertise to the Universities where they are currently working. Most of them tried to pursue research work in Lebanon, and they faced lots of challenges; these challenges are mainly due to the lack of facilities, absence of research grants and funds, lack of qualified graduate students and appropriate research environment.

On the other hand research in Germany is much more structured and benefits from lots of facilities and resources and this automatically leads to a better and more focused research delivery and outcome. In my case, the collaboration I made with German colleagues, and my scientific visits to Germany helped me a lot and allowed me to pursue my research work from Lebanon.