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Towards the mathematical modelling of human behaviour

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Mathematical modelling is a powerful tool, which is widely and deeply used by engineers to solve real problems. In fact, in our opinion, engineers were the originators of this important part of applied mathematics. However, to some degree this activity was developed in some amateur way, since engineers not necessarily have enough mathematical background to develop the mathematical modelling.

One of the tasks of this conference is to spread mathematical modelling to other sciences that are not sufficiently, or almost not at all, familiar with the concept. We are thinking of social sciences, such as psychology and sociology, that deal with problems of high social impact, and others with some tradition but not sufficiently *mathematized*, such as public health or business administration.

This year the expansion strategy of the mathematical modelling throughout our conference reaches the social addiction field, which is a really important emergent area of social illness. Here, the participants have treated shopping addictions, pharmaceutical products addictions and some others such as workaholism.

Social interactions is becoming so important that human behaviour is becoming increasingly interacting throughout social networks and Internet access for an increasing proportion of the population. In spite of the general agreement that the main characteristic of human behaviour is rationality, we believe that the human behaviour is more contagious than rational, and in consequence social addictions are becoming increasingly important. Bet addictions, tanning addictions, or muscle addiction (bigorexia) are important social illnesses deserving a mathematical modelling approach.

An important area where the lack of rationality in human behaviour is relevant is the financial markets, and it is well known that greed and panic are widespread irrational behaviours among investors. In fact, the new area of financial behaviour has become of interest since the recent financial market crashes. In addition, many investors follow strategies of a few leaders showing that the contagious behaviour is not only individual but in many cases also institutional.

Thus, we believe that in the near future the mathematical modelling of human behaviour is going to become more relevant, and from the platform of our conference we wish to promote this activity.

Finally, we should thank and acknowledge all participants and organizers together with our University and the Generalitat of Valencia for supporting this conference.