Numerical methods for DAEs (I. Higueras)

Inmaculada Higueras
higueras@unavarra.es
Universidad Publica de Navarra, Spain

During the last years a big progress has been done in the analysis and numerical treatment of differential algebraic equations (DAEs). In spite of the rich variety of results available in the literature, there are still many specific problems that require a special attention.

DAEs arise in a wide variety of applications that usually condition the nature of the problem. In order to get efficient and accurate numerical solutions, the properties of each model have to be considered and exploited. For example, given a DAEs with a particular structure, the numerical method should take advantage of it; discontinuities of the DAE must be properly handled by the numerical scheme; for DAEs whose solutions have a special property -e.g. contractivity, an asymptotic behavior, etc.- the numerical approximations should reproduce it, and so on. An important reason to proceed in this way is that these properties often reflect principles or important features in the modeling process.

The talks in this minisymposium have been selected to show different current lines of research in DAEs and significant contributions in them.