

# Laurent Gosse

*Italian National Research Council*

## An overview of well-balanced numerical schemes for kinetic equations relying on "Caseology"

Kinetic equations in 1+1 dimensions, once discretized in the "discrete-ordinates" manner, may be viewed as a (semi-) linear  $2N \times 2N$  hyperbolic system. Such a simple approach is sufficient mostly in the special case  $N=1$ , i.e. the two-stream approximation (like for instance Goldstein-Taylor's model), to derive a very reliable WB discretization.

Yet, it doesn't allow to treat correctly models involving a continuous velocity variable, like e.g. radiative transfer, run-and-tumble models of chemotaxis or Fokker-Planck. It turns out that a spectral theory of stationary kinetic equations, sometimes called "Caseology", furnishes exactly what is needed in order to build WB numerical discretizations.

<b>Data</b>	Mércores, 15 de novembro de 2017
<b>Lugar</b>	Aula Magna - Facultade de Matemáticas
<b>Hora</b>	11:00
<b>Idioma</b>	Inglés