# On Validated Exponential Integrators

**Markus Neher**
Karlsruhe Institute of Technology, Germany

Regarding the validated solution of initial value problems for ODEs, all general methods known to the author require the computation of an enclosure of the solution by fixed point iteration as an integral part. This iteration is comparable to a single step in an explicit approximate method, and thus it suffers from the same step size restrictions as explicit methods. In particular, this applies to the validated solution of stiff ODEs.

In this talk, exponential integrators for ODEs are presented. Exponential integrators are also explicit integrators but nevertheless they are known to be reliable for certain types of stiff ODEs. The construction of a validated exponential integration method is also discussed.