

ON THE STRONG APPROXIMATION OF SDES WITH SUPERLINEAR GROWING COEFFICIENTS:  
CONVERGENCE AND STABILITY OF THE EXPONENTIAL EULER SCHEME.

**Mireille Bossy**  
INRIA, France  
mireille.bossy@inria.fr

We consider the problem of approximating the solution of an SDE with a non-globally Lipschitz drift, possibly discontinuous, and a diffusion coefficient with polynomial growth. By studying the strong error, we show the usual convergence rate of  $1/2$  for the exponential Euler scheme.

The condition for obtaining a convergence rate is mainly determined by the possible control of the moments, and the exponential moment of the exact process and the scheme. The proof relies on a time change technique.

*Joint work with Kerlyns Martínez (University of Valparaíso).*