

1084-35-49

**Yuri Latushkin\*** ([latushkiny@missouri.edu](mailto:latushkiny@missouri.edu)), 104 Mathematical Sciences Building, University of Missouri, Columbia, MO 65211, and **Valerian Yurov** ([vayt37@mail.missouri.edu](mailto:vayt37@mail.missouri.edu)), 02 Mathematical Sciences Building, University of Missouri, Columbia, MO 65211. *Effective stability constants for semigroups with applications to Reaction-diffusion equations with degenerate diffusion matrix.*

For a strongly continuous operator semigroup  $T(t)$  on a Banach space, we revisit a quantitative version of Datko's Theorem and establish the estimates on the constant  $M$  that satisfy the inequality  $\|T(t)\| \leq Me^{\omega t}$  for all  $t \geq 0$ , in terms of the norm of convolution. This estimate is then used to establish a stability estimate for the linearization of a degenerate reaction-diffusion system at a travelling pulse or front. (Received August 14, 2012)