

Physical Review D - Particles, Fields, Gravitation and Cosmology 2013 vol.88 N8

---

## Cosmology with nonminimal kinetic coupling and a power-law potential

Skugoreva M., Sushkov S., Toporensky A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

---

### Abstract

We consider cosmological dynamics in the theory of gravity with the scalar field possessing a nonminimal kinetic coupling to gravity,  $\kappa G \mu\nu\phi\mu\nu$ , and the power-law potential  $V(\phi)=V_0\phi^N$ . Using the dynamical system method, we analyze all possible asymptotical regimes of the model under investigation and show that for sloping potentials with  $N > 2$ . Using a numerical analysis, we also construct exact cosmological solutions and find initial conditions leading to the initial kinetic coupling inflation followed either by a "graceful" oscillatory exit or by the secondary inflation. © 2013 American Physical Society.

<http://dx.doi.org/10.1103/PhysRevD.88.083539>

---