Torres, Pedro J.

Existence and stability of periodic solutions for second-order semilinear differential equations with a singular nonlinearity. (English) Zbl 1190.34050

Proc. R. Soc. Edinb., Sect. A, Math. 137, No. 1, 195-201 (2007).

Summary: It is proved that a periodically forced second-order equation with a singular nonlinearity in the origin with linear growth in infinity possesses a T-periodic stable solution for high values of the mean value of the forcing term. The method of proof combines a rescaling argument with the analysis of the first twist coefficient of the Birkhoff normal form for the Poincaré map.

MSC:

34C25 Periodic solutions to ordinary differential equations
34D20 Stability of solutions to ordinary differential equations

Full Text: DOI