

Resonance in a forced piecewise linear oscillator

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As it is well known, the existence of periodic solutions and the boundedness of all solutions is linked in the classical harmonic oscillator

$$\ddot{x} + n^2 x = p(t), \quad n = 1, 2, \dots$$

where $p(t)$ is a 2π -periodic function. This is also the case when we add a piecewise linear saturation function but the proofs are more delicate.