Part III
Applications

The final part of this book contains several important and extremely interesting applications. Besides the classical problem of the forced pendulum, which is solved for the arbitrary amplitudes for the first time, we consider a number of discrete systems, which concern the nonlinear sinks, the metamaterials with intrinsic degrees of freedom, and the locally supported chains. Using the effective semi-inverse method allows exceeding the frontiers of the small-amplitude approximation even in the problems where the small parameter is not presented in the initial formulation of the puzzle. By such a manner, we demonstrate the fundamental properties of the LPT concept not only for the discrete systems, but for the objects with distributed parameters such as the carbon nanotubes.