Review of: "Periodic second-order systems and coupled forced Van der Pol oscillators"

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Potential competing interests: No potential competing interests to declare.

The authors study the existence and localization results for periodic solutions of second-order non-linear coupled planar systems, without requiring periodicity for the non-linearities. Also, they study the periodic solutions for a system of two coupled Van der Pol oscillators with a forcing component.

Theorem 4 is the main result of the paper, and it is interesting and new. The proof sounds OK. The abstract and introduction sections are OK.

I suggest the authors continue these studies for matrix Riccati differential equations and other equations for future studies (see the following articles).

I recommend the paper for publication after a minor revision.

My comment is:

Page 10, equation (27), the calculation can be abbreviated.

I suggest the authors update the introduction with more problems in this setting. Due to this, Page 2, line 11, “decades, for example, [7, 8, 9].” should be replaced by “decades, for example, “[7, 8, 9, X1,X2,X3, X4].” Where

[X1] Z. Goodarzi, M.R. Mokhtarzadeh, M.R. Pournaki, and A. Razani, Note on periodic solutions of matrix Riccati differential equations, Applied Mathematics E-Notes 21 (2021), 179-186.

[X2] M. R. Mokhtarzadeh, M. R. Pournaki, and A. Razani, An existence-uniqueness theorem for a class of boundary value problems, Fixed Point Theory 13 No.2 (2012), 583-592.

[X3] M. R. Mokhtarzadeh, M. R. Pournaki, and A. Razani, A note on periodic solutions of Riccati equations. Nonlinear Dynamics 62 (2010) 119-125.

[X4] M. R. Pournaki and A. Razani, On the existence of periodic solutions for a class of generalized forced Lienard equations. Applied Mathematics Letters 20 (2007), 248-254