Referee report on the paper "Equilibrium Problem for a Kirchhoff–Love Plate Contating with the Lateral Surface along a Strip of a Given Width"

by N. P. Lazarev, D. Y. Nikiforov and G. M. Semenova

This paper focuses on the study of a contact problem for a Kirchhoff–Love plate that may come into contact with a non-deformable obstacle in proximity of its lateral surface. The main contribution consists in establishing the existence and uniqueness of solutions for the problem under consideration. The corresponding boundary-value problem is recovered under suitable additional regularity assumptions.

The paper is well-written and the results are interesting. I recommend the Authors to perform a **MINOR REVISION** by taking into account the comments below.

- On page 147, line 1, the Authors should clearly specify that the number $0 < l \leq 2h$ is fixed.

- On page 147, formula (3) should be commented more in detail. In particular, I would like the Authors to say more about the physical interpretation of this formula.

- On page 148, at the beginning of Section 3, the Authors should clearly indicate what additional smoothness is needed to recover the boundary-value problem starting from the weak formulation.

- On page 151, I believe that there is a typo in the title of Section 4. I believe that the Authors meant to write that $l \to 2h$. Indeed, on page 152 and onward, the limit is considered for a sequence $\{l_n\}_{n \geq 0}$ such that $l_n \to 2h$, as $n \to \infty$.

- In order to complement the bibliography on obstacle problems for elastic structures, I recommend the Authors to cite the following references [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14].

References

[1] Ciarlet PG, Mardare C and Piersanti P. Un problème de confinement pour une coque membranaire linéairement élastique de type elliptique. *C R Math Acad Sci Paris* 2018; 356(10): 1040–1051.

[2] Ciarlet PG, Mardare C and Piersanti P. An obstacle problem for elliptic membrane shells. *Math Mech Solids* 2019; 24(5): 1503–1529.

[3] Ciarlet PG and Piersanti P. A confinement problem for a linearly elastic Koiter's shell. *CR Acad Sci Paris, Sér I* 2019; 357: 221–230.

[4] Ciarlet PG and Piersanti P. Obstacle problems for Koiter's shells. *Math Mech Solids* 2019; 24: 3061–3079.

[5] Piersanti P. An existence and uniqueness theorem for the dynamics of flexural shells. *Math Mech Solids* 2020; 25(2): 317–336.

[6] Piersanti P and Shen X. Numerical methods for static shallow shells lying over an obstacle. *Numer Algorithms* 2020; 85(2): 623–652.

[7] Piersanti P. A time-dependent obstacle problem in linearised elasticity. *Nonlinear Anal* 2020; 192.

[8] Piersanti P. On the improved interior regularity of the solution of a fourth order elliptic problem modelling the displacement of a linearly elastic shallow shell subject to an obstacle. *Asymptot Anal* 2022; 127(1–2): 35–55.

[9] Duan W, Piersanti P, Shen X et al. Numerical corroboration of koiter's model for all the main types of linearly elastic shells in the static case. *Math Mech Solids* To appear; .

[10] Piersanti P. On the improved interior regularity of the solution of a second order elliptic boundary value problem modelling the displacement of a linearly elastic elliptic membrane shell subject to an obstacle. *Discrete Contin Dyn Syst* 2022; 42(2): 1011–1037.

[11] Piersanti P. Asymptotic analysis of linearly elastic elliptic membrane shells subjected to an obstacle. *Journal of Differential Equations* 2022; 320: 114–142.

[12] Piersanti P. Asymptotic analysis of linearly elastic flexural shells subjected to an obstacle in absence of friction. *J Nonlinear Sci* 2023; 33(4): Paper No. 58, 39.

[13] Piersanti P and Temam R. On the dynamics of grounded shallow ice sheets. modelling and analysis. *Adv Nonlinear Anal* 2023; 12(1): 40 pp.

[14] Meixner A and Piersanti P. Numerical approximation of the solution of an obstacle problem modelling the displacement of elliptic membrane shells via the penalty method. *Appl Math Optim* 2024; 89(2): Paper No. 45, 60.