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see:

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IHS, Toronto, Researcher (IHS is known only as IHS)

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**General Fields of work:**

Stability of structures

Dynamics of Structures

Asymptotical methods in Mechanics

Modeling of structures

Beam, plate and shell structures

Nonlinear continuum mechanics

Reliability Analysis of Complex Systems

Fault Tree Analysis

Monte Carlo Method

**Teaching:**

Strength of Materials

Shell and Plate Theory  
Stability of Shells  
Asymptotical and Numerical Methods in Structural Engineering  
Calculus and Differential Equations

### **Biography and Career:**

13.11.1951 Born in Novosibirsk, Siberia, Russia  
1968-1973 Study of Applied Math and Mechanics at Dnepropetrovsk State University, Ukraine  
1973 -1976 Researcher at Dnepropetrovsk State University, Ukraine  
1976-1979 Postgraduate Student of Dnepropetrovsk Civil Engineering Academy, Ukraine  
1980 PhD-thesis "***Stability and post-buckling behavior of axially compressed cylindrical shells with regards to local perturbations***"  
1979-1998 Assistant, Associate Professor of Dnepropetrovsk Civil Engineering Academy, Ukraine  
1989-1992 Visiting Professor at Moscow Aviation Institute, Russia  
1992 Habilitation-thesis "***The asymptotic analysis of stability, post-buckling behavior and strong bending of thin shells***"  
1999-2000 Researcher at Dalhousie University, Halifax, Canada  
2000 -2002 Senior Software Engineer at Dyadem Int., Toronto, Canada  
2002 Founder of Company "Software for structures", Toronto, Canada  
2002-2004 Professor of King Fahd University of Petroleum and Minerals, Saudi Arabia  
since 2005 Senior Researcher at Dyadem Int. (acquired by IHS), Toronto, Canada

**More than 100 publications in national and international journals and proceedings.**

### **Some publications relating to stability:**

1. Evkin A. Yu., 2005, "Large deflections of deep orthotropic spherical shells under radial concentrated load: asymptotic solution", *International Journal of Solids and Structures*, Vol. 42, pp. 1173-1186.
2. Evkin A., 2004, "Asymptotic investigation of vehicle shock absorber with reversing shell of revolution", *International Journal of Vehicle Design*, Vol. 34, No. 4, pp. 399-410.
3. Evkin A. and Kalamkarov A., 2001, "Analysis of large deflection equilibrium states of composite shells of revolution. Part 1. General model and singular perturbation analysis", *International Journal of Solids and Structures*, Vol. 38, No. 50-51, pp. 8961-8974.
4. Evkin A. and Kalamkarov A., 2001, "Analysis of large deflection equilibrium states of composite shells of revolution. Part 2. Applications and numerical results", *International Journal of Solids and Structures*, Vol. 38, No. 50-51, pp. 8975-8987.
5. Evkin A.Yu. and Dubichev A., 1997, "An experimental investigation of axisymmetrical and asymmetrical post-buckling equilibrium configurations of spherical shell under external pressure", *Prikladnaya Mekhanika*, Vol. 33, No. 7, pp. 31-35 (English translation: *International Applied Mechanics*, Vol. 33, No. 6, 1997).
6. Evkin A.Yu. and Dubichev A., 1995, "Stability of the axisymmetrical equilibrium shape of an orthotropic spherical shell in large bending", *Prikladnaya Mekhanika*, Vol. 31, No. 6, pp. 72-78 (English translation: *International Applied Mechanics*, Vol. 31, No. 6, pp. 477- 482, 1995).
7. Stankevich A. I., Evkin A. Yu. and Veretennikov S. A., 1993, "Stability of the Spherical shells under dynamic loading", *Prikladnaya Mekhanika*, Vol. 29, No. 1, pp. 41-48 (English translation: *International Applied Mechanics*, Vol. 29, No. 1, pp. 35-42, 1993).
8. Korovaitsev A.V. and Evkin, A.Yu., 1992, "Axisymmetric deformation of toroidal shells with strong flexure", *Prikladnaya Mekhanika*, Vol. 28, No. 4, pp. 16-23 (English translation: *International Applied Mechanics*, Vol. 28, No. 4, pp. 216-222, 1992).
9. Evkin A.Yu and Korovaitsev A.V., 1992, "Asymptotic analysis of the transcritical axisymmetric state of stress and strain in shells of revolution under strong bending", *Izv. Ross. Akad. Nauk. Ser. Mekhanika Tverdogo Tela*, Vol. 27, No. 1, pp. 125-133 (English translation: *Bull. of the Russian Acad. of Science / Mechanics of Solids*, Vol. 27, No. 1, pp. 121-129, 1992).

10. Evkin A.Yu and Krasovsky V. L, 1991, "Post-critical deformation and estimation of the stability of real cylindrical shells under external pressure", *Prikladnaya Mekhanika*, Vol. 27, No. 3, pp. 76-83 (English translation: *Soviet applied mechanics*, 1991, Vol. 27, No. 3, pp. 290-296).
11. Evkin, A.Yu., 1989, "A new approach to the asymptotic integration of the equations of shallow convex shell theory in the postcritical stage", *Prikl. Matem. Mekh. (PMM)*, Vol.53, No. 1, pp. 115 - 120 (English translation: *Journal of Applied Mathematics and Mechanics*, Vol. 53, No. 1, pp. 92 - 96, 1989).
12. Evkin A.Yu., Krasovsky V. L., and Manevich L. I., 1978, "Stability of longitudinally compressed cylindrical shells under quasi-static local disturbances", *Izv. Akad. Nauk. SSR. Ser. Mekhanika Tverdogo Tela*, Vol. 13, No. 6, pp. 95-100 (English translation: *Bull. of Acad. of Science of the USSR / Mechanics of Solids*, Vol. 13, No. 6, pp. 83-88, 1978).
13. Mossakovskii V. I., Manevich L. I. and Evkin A.Yu, 1975, "Investigation of postbuckling equilibrium forms of a compressed cylindrical shell", *Prikladnaya Mekhanika*, Vol. 11, No. 11, pp. 24-30 (English translation: *Soviet applied mechanics*, 1975, Vol. 11, No. 11, pp. 1155-1159).
14. A. Evkin, "Composite spherical shells at large deflections. Asymptotic analysis and applications," *Composite Structures, Volume 233, 1 February 2020, 111577*.
15. A. Evkin, "Dynamic energy barrier estimation for spherical shells under external pressure," *International Journal of Mechanical Sciences, Volume 160, September 2019, pp. 51-58*.
16. A. Evkin, V. Krasovsky, O. Lykhachova, V. Marchenko, "Local buckling of axially compressed cylindrical shells with different boundary conditions", *Thin-Walled Structures* 141 (2019) 374-388.
17. A. Evkin and O. Lykhachova, "Design buckling pressure for thin spherical shells: Development and validation," *International Journal of Solids and Structures, Volumes 156–157, January 2019, pp. 61-72*.
18. A.-Yu. Evkin, "Local buckling of cylindrical shells. Pogorelov's geometrical method", in: I.V. Andrianov, A. Manevich, Yu.V. Mikhlin, O. Gendelman (Eds), *Problems of nonlinear mechanics and physics of materials*, Springer, (2018) 369-391.
19. A. Evkin, M. Kolesnikov and O. Lykhachova, "Buckling load prediction of an externally pressurized thin spherical shell with localized imperfections". *Mathematics and Mechanics of Solids, 2018*, <https://doi.org/10.1177/1081286517753277>
20. A. Y. Evkin and O. V. Lykhachova, "Energy barrier as a criterion for stability estimation of spherical shell under uniform external pressure," *International Journal of Solids and Structures; Volumes 118–119, July 2017, pp. 14-23*.
21. Evkin, A., Kolesnikov, M., Prikazchikov, D.A., "Buckling of a spherical shell under external pressure and inward concentrated load: Asymptotic solution". *Math. Mech. of Solids*, 1, 2016, pp. 1-13.