

PUBLICATIONS BY PROFESSOR KAZIMIERZ SOBCZYK

1. Books

Sobczyk K., "*Methods of Statistical Dynamics*" (in Polish), Polish Scientific Publishers, Warsaw, 1973; pp. 1- 427.

Sobczyk K., "*Stochastic Wave Propagation*", Elsevier, Amsterdam, 1985; pp. 1- 248.
(modified and extended version of the Polish edition "*Fale stochastyczne*", PWN, Warszawa, 1982)

Sobczyk, K., "*Stochastic Differential Equations with Applications to Physics and Engineering*", Kluwer Acad. Publ., Dordrecht, 1991; pp. 1- 400.
(translation to Polish "*Stochastyczne Równania Różniczkowe dla Zastosowań*", WNT, Warszawa, 1996)

Sobczyk K., Spencer B.F. Jr., "*Random Fatigue: From Data to Theory*", Academic Press, Boston, 1992; pp. 1- 266.
(Polish translation: Sobczyk K., Spencer B.F. "*Stochastyczne Modele Zmęczenia Materiałów*", WNT, Warszawa, 1996)

Sobczyk K., Kirkner D.J., "*Stochastic Modelling of Microstructures*", Birkhauser, Boston, 2001; pp. 1- 270.

Sobczyk K. (Editor), "*Stochastic Approach to Fatigue*", Springer-Verlag, Vienna, New York, 1993, pp. 1- 301.

Sobczyk K. (Editor), "*Random Material Microstructures: Modelling and Mechanical Behaviour*", Centre of Excellence for Advanced Materials and Structures, IPPT PAN, Warszawa, 2004, pp. 1-342.

2. Research Papers

Sobczyk K., Scattering of plane wave at a random surface, Proc. Vibr. Problems, Vol. 6, Nr 1, 99-109, 1965.

Sobczyk K., Scattering of Rayleigh waves at a random boundary of an elastic body, Proc. Vibr. Problems, Vol. 7, Nr 4, 363-374, 1966.

Sobczyk K. Scattering of waves at rough surfaces, P. I – Deterministic problems (in Polish), Postępy Fizyki, Vol. 18, Nr 1, 1967.

Sobczyk K., Scattering of waves at rough surfaces, P. II – Probabilistic problems (in Polish),

Postępy Fizyki, Vol. 18, Nr 3, 1967.

Sobczyk K., On Dynamical Systems with Random Initial Conditions,
Bull. De L Acad. Pol. Des Sci., Ser. Techn. Sci. Vol. 16, Nr 2, 1-7, 1968.

Sobczyk K., Thermoelastic field in semi-space bounded by a rough surface,
Proc. Vibr. Problems, Vol. 9, Nr 2, 169-181, 1968.

Sobczyk K., One-dimensional random elastic waves,
Proc. Vibr. Problems, Vol. 10, Nr 4, 1969.

Sobczyk K., Random vibrations of statistically inhomogeneous elastic systems,
Proc. Vibr. Problems, Vol. 11, Nr 4, 369-381, 1970.

Sobczyk K., Stochastic stability of motion, (in Polish)
Mech. Teor. Stos., Vol. 8, Nr 4, 1970.

Sobczyk K., Free vibrations of elastic plate with random properties - the eigenvalue problem,
Journal of Sound and Vibration, Vol. 22, Nr 1, 33-39, 1972.

Sobczyk K., Reflection of a scalar wave from a plane with random impedance,
Acta Physica Polonica, Ser. A, 44(4), 581-586, 1973.

Sobczyk K., Wave propagation in stochastic media (in Russian),
Miekhanika-Sb. pierevodov (Izd. Mir), 6/148, 142-157, 1974.

Sobczyk K., Elastic wave propagation in discrete random media,
Acta Mechanica, Vol. 25, Nr 1-2, 13-28, 1976.

Sobczyk K., Coherent wave propagation in stochastic material media,
Letters on Applied and Eng. Sciences - Intern. Journal, Vol. 4, Nr 2, 147-167, 1976.

Sobczyk K. and Macvean D.B., Non-stationary random vibrations of systems travelling with variable velocity,
in: "Stochastic Problems in Dynamics" (Ed. B.D. Clarkson),
Pitman, 412-434, 1976.

Sobczyk K., Macvean D.B. and Robson J.D., Response to profile-imposed excitation with randomly varying traversal velocity,
Journal of Sound and Vibration, Vol. 52 (1), 37-49, 1977.

Sobczyk K., Structural dynamics and stochastic models of failures, (in Polish),
Mech. Teor. Stos., Vol. 18, Nr 2, 1980.

Witt M. and Sobczyk K., Dynamic response of laminated plate to random loading,
Intern. J. of Solids and Structures, Vol. 16, Nr 2, 1980.

Kotulski Z. and Sobczyk K., Linear systems and normality,

Journal of Statistical Physics, Vol. 24, Nr 2, 359-373, 1981.

Sobczyk K., On the Markovian models for fatigue accumulation,
J. de Mecanique Theorique et Applique, N. special, 147-160, 1982.

Sobczyk K., On the reliability models for random fatigue damage,
in: "New Problems in Continuum Mechanics" (Eds: Brulin O., Hsieh R.),
Waterloo University Press, 1983.

Sobczyk K., On the normal approximation in stochastic dynamics,
in: Proc. of IUTAM Symp. "Random vibrations and Reliability" (Ed. Hennig K.),
Academie-Verlag, Berlin, 317-326, 1983.

Iwankiewicz R. and Sobczyk K., Dynamic response of linear structures to correlated random impulses,
Journal of Sound and Vibration, 86 (3), 303-317, 1983.

Kotulski Z. and Sobczyk K., Characteristic functionals of randomly excited physical systems,
Physica A, Vol. 123 A, 261-278, 1984.

Sobczyk K., Stochastic modelling of fatigue crack growth,
in: Proc. of IUTAM Symp. "Probabilistic Methods in Mechanics of Solids and Structures" (Eds:
Eggwertz S., Lind N.C.),
Springer-Verlag, 111-119, 1985.

Sobczyk K., Stochastic waves: the existing results and new problems,
Probabilistic Engineering Mechanics, Vol. 1, Nr 3, 167-176, 1986.

Sobczyk K., Modelling of random fatigue crack growth,
Engineering Fracture Mechanics, Vol. 24, Nr 4, 609-623, 1986.

Ditlevsen O. and Sobczyk K., Random fatigue crack growth with retardation,
Engineering Fracture Mechanics, Vol. 24, Nr 6, 861-878, 1986.

Sobczyk K., Probabilistic modelling of fatigue crack growth under variable amplitude loading,
in: "Random Vibrations - Status and Recent Developments", (Eds: Elishakoff I., Lyon R.H.),
Elsevier, 451-458, 1986.

Sobczyk K., Stochastic models for fatigue damage of materials, Advances in Applied Probability,
Vol. 19, 652-673, 1987.

Kotulski Z. and Sobczyk K., Effects of parameter uncertainty on the response of vibratory systems to random excitation,
Journal of Sound and Vibrations, Vol. 119, Nr 1, 159-171, 1987.

Sobczyk K., Stochastic analysis of one-dimensional nonlinear wave processes,
in: Proc. of IUTAM Symp. "Nonlinear Stochastic Dynamic Engineering Systems" (Eds: Ziegler F.,
Schueller G.I.), Springer-Verlag, 313-320, 1988.

Kotulski Z. and Sobczyk K., On the moment stability of vibratory systems to random impulsive excitation,
Archives of Mechanics, Vol. 40, Nr 4, 1988.

Orłowski A. and Sobczyk K., Solitons and shock waves under random external noise,
Reports on Math. Physics, Vol. 27, Nr 2, 1989.

Sobczyk K., Stochastic modelling of fatigue accumulation,
in: Proc. of IUTAM Congress "Theoretical and Applied Mechanics" (Eds: Germain P., Piau M., Caillerie D.),
Elsevier, 1989.

Sobczyk K. and Trębicki J., Modelling of random fatigue by cumulative jump processes,
Eng. Fracture Mechanics, Vol. 34, Nr 2, 1989.

Sobczyk K., Stochastic approach to fatigue fracture,
in: "Continuous Models and Discrete Systems" (Ed. G. Maugin),
Longman, 1990.

Sobczyk K. and Trębicki J., Maximum entropy principle in stochastic dynamics,
Probabilistic Eng. Mechanics, Vol. 5, Nr 3, 1990.

Sobczyk K., On the stochastic modeling and analysis of fatigue,
ZAMM (Zeitschrift für Angewandte Mathematik und Mechanik), Vol. 78, Nr 4, T17-T20, 1990.

Bellomo N., Bonzani I., Sobczyk K., On nonlinear wave process generated by random signals,
Accademia Peloritana dei Pericolanti, Messina, Vol. LXVIII, 1990, pp. 425-440.

Sobczyk K. and Trębicki J., Cumulative jump-correlated model for random fatigue,
Eng. Fracture Mechanics, Vol. 40, Nr 1, pp. 201-210, 1991.

Sobczyk K., Korteweg de Vries solitons in randomly varying medium,
Intern. J. of Nonlinear Mechanics, Vol. 27, Nr 1, pp. 1-8, 1992.

Sobczyk K. and Trębicki J., Analysis of stochastic systems via maximum entropy principle,
in: Nonlinear Stochastic Mechanics (Eds. Bellomo N., Casciati F.), pp. 485-497,
Springer-Verlag, Berlin, 1992.

Sobczyk K. and Trębicki J., Maximum entropy principle and nonlinear stochastic oscillators,
Physica A, 193, pp. 448-468, 1993.

Sobczyk K., Stochastic modelling of fatigue: methodical background,
in: Stochastic Approach to Fatigue (Ed. Sobczyk K.),
Springer – Verlag, CISM, Wien – N. York, 1993, pp. 1-33.

Sobczyk K., Stochastic cumulative models for fatigue,
in: Stochastic Approach to Fatigue (Ed. Sobczyk K.),
Springer – Verlag, CISM, Wien – N. York, 1993, pp. 165-183.

- Sobczyk K.**, Stochastic wave propagation: results and recent trends,
in: Klemann W., Namachchivaya, (Eds.), *Nonlinear Dynamics and Stochastic Mechanics*,
CRC Press, Boca Raton, London, 1995.
- Sobczyk K., Trębicki J. and Spencer B.F., Jr.**, Modelling of curvilinear fatigue crack growth,
Eng. Fracture Mech., Vol. 52, No 4, 703-715, 1995.
- Sobczyk K. and Spencer B.F., Jr.**, Random microstructural effects on fatigue accumulation,
Int. Journal of Fatigue, Vol. 17, No 8, pp. 521-530, 1995.
- Sobczyk K., Wedrychowicz S. and Spencer B.F., Jr.**, Dynamics of structural systems with spatial
randomness,
Int. Journal of Solids and Structures, Vol. 33, No 11, pp. 1651-1669, 1996.
- Sobczyk K. and Trębicki J.**, Nonstationary response of stochastic systems via maximum entropy
principle,
in: *Advances in Nonlinear Stochastic Mechanics* (Eds. Naess A. and Krenk S.),
Kluwer Acad. Publ., 1996, pp. 437-448.
- Sobczyk K. and Trębicki J.**, Modelling of randomly meandering fatigue crack growth
in: *Probabilistic Mechanics and Structural Reliability* (Eds. Frangopol D.M., Grigoriu M.),
ASCE, N. York, 1996, pp. 478-481.
- Trębicki J. and Sobczyk K.**, Curvilinear fatigue crack growth: effect of overloads,
Fatigue and Fracture of Eng. Materials and Structures - The Intern. Journal, Vol. 19, No 2/3, pp.
361-371, 1996.
- Trębicki J. and Sobczyk K.**, Maximum entropy principle and non-stationary distributions of
stochastic systems,
Probabilistic Eng. Mechanics, Vol. 11, pp.169-178, 1996.
- Sobczyk K.**, Probability distributions for stochastic systems: maximum entropy method,
Probabilistic Eng. Mechanics, Vol. 12, no 4, 1997.
- Sobczyk K.**, On cumulative jump models for random deterioration processes,
Annales Universitatis Mariae Curie-Skłodowska, Lublin - Polonia, Vol. LI.1, 15 (Sectio A -
Matematica), pp. 145-157, 1997.
- Sobczyk K.**, Stochastic nonlinear systems: existing methods and new results,
ZAMM (Zeitschrift für Angewandte Mathematik und Mechanik), 78, 10, 651-661, 1998.
- Sobczyk K. and Trębicki J.**, Approximate probability distributions for stochastic systems:
maximum entropy method,
Computational Methods in Applied Mechanics and Engineering, 168, 91-111, 1999.
- Sobczyk K., Trębicki J.**, Stochastic response of degrading elastic systems,
Proc. IUTAM Symposium on Rheology of Bodies with Defects (Ed. R. Wang),
Kluwer Acad. Publ., 1999, pp. 99-108.

Sobczyk K., Information Dynamics: Premises, Challenges and Results,
Mech. Systems & Signal Processing, 15 (3), 475-498, 2001.

Sobczyk K., Stochastic models of natural and engineering processes (in Polish),
in: Engineering Sciences at the beginning of XXI century (Ed. Kleiber),
Institute of Fundamental Technological Research, Warsaw 2002, pp. 275-293.

Sobczyk K., Reconstruction of random material microstructures; patterns of maximum entropy,
Probabilistic Eng. Mechanics, Vol. 18, No. 4, pp. 279-287, 2003.

Sobczyk K., Trębicki J., Movchan A. B., Crack path in an elastic material with a random array of
small defects,
Intern. J. of Fracture, Vol. 125, pp. 103-123, 2004.

Sobczyk K., Trębicki J., Fatigue crack growth in random residual stresses,
Intern. J. of Fatigue, Vol. 26, pp. 1179-87, 2004.

Papadimitriu C., Haralampidis Y., Sobczyk K., Optimal experiment design in stochastic structural
dynamics,
Probabilistic Eng. Mechanics, Vol. 20, pp. 68-78, 2005.

Sobczyk K., Stochastic Dynamics of Engineering Systems: Origins, challenges and results,
in: W. Gutkowski, T.A. Kowalewski: Mechanics of the 21-st Century
(Proc. of ICTAM-2004: pp. 19-60, Springer, 2005).

Sobczyk K., Trębicki J., Effect of random microstructures on short fatigue crack growth,
Proc. of ICOSSAR-2005 (Eds. Augusti G., Schueller G.I., Ciampoli M.),
Millpress Rotterdam, pp. 3535-3540, 2005.

Sobczyk K., Stochastic dynamics and reliability of degrading systems, Bull. of Polish Acad. Sci. -
Technical Sci., Vol. 54, No. 1, pp. 125-138, 2006.

Sobczyk K., Randomness complexity and predictability: toward understanding (in Polish),
Nauka (quarterly of the Polish Acad. of Sciences), No. 2, pp. 45-65, 2006.

Sobczyk K., Trębicki J., Movchan A.B., Characterization of random microstructural stresses and
fracture estimation,
European J. of Mech./A-Solids, Vol. 25, No.1, 2007.

Gaidai O., Naess A., Sobczyk K., The effect of fatigue – induced crack propagation on the stochastic
dynamics of a nonlinear structure,
Probabilistic Eng. Mechanics, Vol. 23, Nr 4, pp. 438-443, 2008.

Sobczyk K., Morphological complexity of material microstructures: from stochastic models to
fracture estimation,
Probabilistic Eng. Mechanics, Vol. 23, No. 4, pp. 444-455, 2008.

Sobczyk K., Perros K., Papadimitriou C., Fatigue reliability of multi-dimensional vibratory
degrading systems under random loading, ASCE Journal of Engineering Mechanics, 2009 – in press.