



ADMISSION TO DOCTORAL STUDIES
September 2022

Session

Field of doctoral studies: Mechanical Engineering
Doctoral supervisor: Roşca Ioan Călin

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: *Contributions on ultrasonic horns optimisation*

Recommended bibliography:

1. Roşca I.C., ; Pop M.I., Creţu N - Experimental and numerical study on an ultrasonic horn with shape designed with an optimization algorithm, APPLIED ACOUSTICS, Volume: 95, Pages: 60-69, DOI: 10.1016/j.apacoust.2015.02.009
2. Creţu, N., Delsanto P.P., Niţă, G., Roşca C., Scalerandi M., Sturzu I - Ultrasonic pulse propagation in inhomogeneous one-dimensional media, JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, Volume: 104, Issue: 1, Pages: 57-63, DOI: 10.1121/1.423283
3. Roşca C., Chiriacescu T.S., Creţu, N. - Ultrasonic horns optimization, INTERNATIONAL CONGRESS ON ULTRASONICS, PROCEEDINGS, Physics Procedia, Volume: 3, Issue: 1, Pages: 1033-1040, DOI: 10.1016/j.phpro.2010.01.13
4. Roşca I.C. - Concentratori mecanici de ultrasunete, Editura Universităţii Transilvania din Braşov, 2002

TOPIC 2: *Contributions on sound-insulating materials*

Recommended bibliography:

1. Raluca Fernea, Daniela Lucia Manea, Daniela Roxana Tămaş-Gavrea, Ioan Călin Roşca - Hemp-clay building materials - An investigation on acoustic, thermal and mechanical properties, Procedia Manufacturing, Volume 32, 2019, pp. 216-223
2. Raluca Fernea, Daniela Roxana Tămaş-Gavrea, Daniela Lucia Manea, Ioan Călin Roşca, Claudiu Aciu, Constantin Munteanu - Multicriterial analysis of several acoustic absorption building materials based on hemp, Procedia Engineering 181 (2017) 1005 - 1012
3. Roşca I.C. - Concentratori mecanici de ultrasunete, Editura Universităţii Transilvania din Braşov, 2002
4. * * * - MINISTERUL TRANSPORTURILOR, CONSTRUCŢILOR ŞI TURISMULUI DIRECŢIA GENERALĂ TEHNICĂ ÎN CONSTRUCŢII NORMATIV PRIVIND PROTECŢIA LA ZGOMOT Prevederi generale, Elaborat de: UNIVERSITATEA DE ARHITECTURĂ ŞI URBANISM „ION MINCU” - UAUIM BUCUREŞTI,
http://www.zgomot.ro/layouts/site/images/pdf/normativ_zgomot.pdf

TOPIC 3: *Research on the analysis of noises and vibrations of rolling bearings with ceramic balls*

Recommended bibliography:

1. Gafițanu M., Năstase D., Crețu S.P., Olaru D. (1985): Rulmenți. Proiectarea și tehnologie. Editura Tehnică, București;
2. Chiriacescu S. T., Balcu I., *Introducere în teoria elasticității și rezistența materialelor*, Editura Universității Transilvania din Brașov, 2008, ISBN 978-973-598-244-7;
3. Popa Alexandru Constantin V., Cerbu Camelia, *Introducere în Metoda Elementelor Finite*, Editura Universității Transilvania din Brașov, 2013, ISBN 978-606-19-0332-0, 562 pagini;
4. Roșca I. C., *Vibrații mecanice*, Editura Infomarket Brasov, ISBN 973-8204-24-0;
5. Roșca I. C., *Vibrații mecanice. Concepte și aplicații*, Editura Universității „Tranilvania” din Brașov, 2015 (ISBN 978-606-19-0690-1);
6. Singiresu S. Rao - *The Finite Element Method in Engineering 5th Edition*, ISBN-13: 978-1856176613, ISBN-10: 1856176614
7. X.T. Bai, Y.H. Wu, I.C. Rosca, K. Zhang, H.T. Shi - Investigation on the effects of the ball diameter difference in the sound radiation of full ceramic bearings, *Journal of Sound and Vibration*, 450 (2019), 231-250
8. Yuhou Wu, Haipeng Yan, Songhua Li, Ke Zhang, Lixiu Zhang - Calculation on the radiation noise of ceramic ball bearings based on dynamic model considering nonlinear contact stiffness and damping, *Journal of Sound and Vibration*, 479 (2020), 231-250
9. Shchurova, E. I. - Modeling of the Ceramics Structure for the Finite Element Analysis, *International Conference on Industrial Engineering, ICIE 2016, Procedia Engineering 150 (2016) 179 - 184*
10. Huaitao Shi, Zimeng Liu, Xiaotian Bai, Yupeng Li and Yuhou Wu - A Theoretical Model with the Effect of Cracks in the Local Spalling of Full Ceramic Ball Bearings, *Appl. Sci.* 2019, 9, 4142; doi:10.3390/app9194142

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