



Shuichi SAKAMOTO, Ph.D.

Associate Professor

Program: Advanced Materials and Technology

Area: Advanced Mechanical Science and Engineering

Undergraduate: Dept. of Mechanical and Production Eng.

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Professional Expertise

His research interests include acoustical engineering based on mechanical engineering, noise control and analysis of acoustical system. In this research field, his laboratory deals with porous sound absorbing materials, acoustical solid materials, sound attenuating constructions and also alternative bio equipment. His laboratory focuses on measurement, detection and failure diagnosis using sound, also.

Research Fields of Interest

Analysis and Development of Sound Absorbing Materials or Acoustical Materials

- Sound Absorbing Materials Using of Biomass
- Extremely Light Sound Absorbing Material
- Acoustic Characteristics Variation of Granular Material by Water Content or for Multilayer with Different Grain Diameters
- Alternative Material of Ivory Used for Musical Instruments
- Artificial Larynx Built in TE Shunt Valve

Noise control

- Development of Silencers Applicable to Natural Ventilation Holes
- Louver Elements with a Sound Attenuating Function
- Natural Ventilation Silencer Specializes in Dog Barking
- Active Noise Control at Opening with Movable Louver

Measurement, detection and diagnosis using sound

- Detection of Leak of Hollow Optical Fiber Using Acoustics
- Non-Contact Discrimination Method of the Form of Powder Materials in Plastic Bag or Cylindrical Container by Sound
- Detecting Number of Sheets Paper and Cloth Using Sound with or without contact
- Sound Quality for Micro Axial Fan with Blade Run-Out

Education

1991: Ph.D. in Engineering, Graduate School of Science and Technology, Niigata University, Japan

1988: M.S. in Engineering, Graduate School of Engineering, Niigata University, Japan

1986: B.S. in Engineering, Dept. of Mechanical Engineering, Niigata University, Japan

Professional Societies and Activities

1. Member of the Japan Society of Mechanical Engineers
2. Member of the Institute of Noise Control Engineering of Japan

Awards

1. Japan Society of Mechanical Engineers Production Engineering Division, Manufacturing and Machine tool Award for Outstanding Presentation, 1997
2. Japan Society of Mechanical Engineers Research Encouragement Award, 1996

Major Publications

Papers

- [1]"Theoretical Analysis and Measurement of Sound Transmission Loss in Louver Elements with a Sound Attenuating Function Using a Narrow Tube Array", *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol 79, No. 804, 2013.
- [2]"An Artificial Larynx Built in TE Shunt Valve that Produces Substitute Voice by only Patient's Own Expiration (Preliminary Study for Suitable Tone Pitch and its Controllability)" *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol. 78, No. 792, pp. 3053-3063, 2012.
- [3] "Sound Quality for Micro Axial Fan with Blade Run-Out", *Journal of Environment and Engineering*, Vol 7, No. 1, pp. 1-11, 2012.
- [4]"Detection of Leak of Hollow Optical Fiber Using Acoustics (Experiments and Theoretical Analysis)", *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol 77 No. 777, pp. 2096-2106, 2011.
- [5] "Study for Sound Absorbing Materials of Biomass Tubule etc. (Measured Result for Rice Straw, Rice Husks, and Buckwheat Husks)", *Journal of Environment and Engineering*, Vol 6, No. 2, pp. 352-364, 2011.
- [6] "Basic Study for Acoustic Absorption Characteristics of Soft and Light Granular Material (Basic Characteristics for Expanded Polystyrene Beads)", *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol 76, No. 770, pp. 2545-2551, 2010.
- [7] "Study for Acoustic Characteristics Variation of Granular Material by Water Content", *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol 75, No. 757, pp. 2515-2520, 2009.
- [8] "Basic Study for the Acoustic Characteristics of Granular Material (Normal Incidence Absorption Coefficient for Multilayer with Different Grain Diameters)", *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol 74, No. 745, pp. 2240-2245, 2008.
- [9] "Attenuation Effects of Discrete Tone Using Adaptive Feedback Active Noise Control", *Journal of Environment and Engineering*, Vol 2 No. 3, pp. 470-479, 2007.
- [10] "Method of Detecting Number of Sheets Using Sound : 5th Report, Non-Contact Measurement by Using Acoustic Characteristics of Cloths", *Transactions of the Japan society of Mechanical Engineers, Series C*, Vol 67, No. 657, pp. 1276-1281, 2001.
- [11]"A New Measuring Method for Underwater Displacement, Utilizing Sound Signal (Experimental Relationship between

Sound Frequency and Displacement)", *JSME International Journal, Ser. III*, Vol. 38, No. 1, pp. 42-47, 1995.

[12] "Sound-Based Detection Method of Number of Sheets", *Journal of Advanced Automation Technology*, Vol. 6, No. 1, pp. 42-49, 1994.

[13] "A New Method of Measuring Displacement by Means of Variation of Sound Frequency and the Length of Air Column in a Small Pipe. (A Resonant Method using Speaker and Electric Feedback Loop)", *JSME International Journal, Ser. III*, Vol. 35, No. 1, pp. 9-13, 1992.

[14] "A New Measuring Method of Displacement and Position by Means of Variation of Sound Frequency of Air Column in a Small Pipe. (Relation Between Active End Correction and Transit Angle)", *JSME International Journal, Ser. III*, Vol. 31, No. 4, pp. 727-731, 1988.

Book Chapters

[1]Karl-Heinrich Grote, Erik K. Antonsson, Shuichi Sakamoto, et al., 2009, Handbook of Mechanical Engineering, Springer, pp. 787-818.