

varying conditions, multi-disciplinary nature of technology required and the sensitivity of sensor networks should be methodically addressed in the future extensions of this study.

REFERENCES

- Altunışık, A. C., Okur, F. Y., Karaca, S., & Kahya, V. (2019). Vibration-based damage detection in beam structures with multiple cracks: modal curvature vs. modal flexibility methods. *Nondestructive Testing and Evaluation*, 34(1), 33–53. <https://doi.org/10.1080/10589759.2018.1518445>
- Beskhyroun, S., Oshima, T., Mikami, S., & Tsubota, Y. (2006). Damage identification of steel structures based on changes in the curvature of power spectral density. In *2nd International conference on structural health monitoring of intelligent infrastructure* (pp. 11–21).
- Brownjohn, J. M. W. (2006). Structural health monitoring of civil infrastructure. *Philosophical Transactions of The Royal Society A*, 365(1851), 589–622. <https://doi.org/10.1098/rsta.2006.1925>
- Cawley, P. (2018). Structural health monitoring : Closing the gap between research and industrial deployment. *Structural Health Monitoring*, 17(5), 1225–1244. <https://doi.org/10.1177/1475921717750047>
- Cawley, P., & Adams, R. D. (1979). The location of defects in structures from measurements of natural frequencies. *Journal of Strain Analysis*, 14(2), 49–57.
- Chen, H.-P., & Ni, Y.-Q. (2018). *Structural Health Monitoring of Large Civil Engineering Structures*. John Wiley & Sons.
- CSI. (2017). *Software Verification Examples*. Computers & Structures, Inc., 1978-2017.
- Dance user's guide (2016) Version 632.1. ANCO Engineers, INC.
- Dessi, D., & Camerlengo, G. (2015). Damage identification techniques via modal curvature analysis : Overview and comparison. *Mechanical Systems and Signal Processing*, 52–53, 181–205. <https://doi.org/10.1016/j.ymssp.2014.05.031>

- Doebbling, S. W., Farrar, C. R., & Prime, M. B. (1998). A Summary Review of Vibration-Based Damage Identification Methods. *The Shock and Vibration Digest*, 30(2), 91–105.
- Fan, W., & Qiao, P. (2011). Vibration-based damage identification methods: A review and comparative study. *Structural Health Monitoring*, 10(1), 83–111. <https://doi.org/10.1177/14759217110365419>
- Farrar, C. R., & Worden, K. (2007). An introduction to structural health monitoring. *Philosophical Transactions of The Royal Society A*, 365, 303–315. https://doi.org/10.1007/978-3-7091-0399-9_1
- Gong, M. S., Xie, L., & Ou, J. P. (2008). Modal parameter identification of structure model using shaking table test data. In *14th World Conference on Earthquake Engineering, Beijing, China*. <https://doi.org/10.1109/CISP.2010.5646395>
- Gürkan, K., Gürkan, G., & Dindar, A. A. (2018). Design and realization of multi-channel wireless data acquisition system for laboratory-scale experiments on structural health monitoring. *Journal of Measurements in Engineering*, 6(1), 64–73. <https://doi.org/10.21595/jme.2018.19699>
- Hosur, V. (2013). *Earthquake-resistant design of building structures*. Wiley.
- Kalooop, M. R., & Hu, J. W. (2016). Damage Identification and Performance Assessment of Regular and Irregular Buildings Using Wavelet Transform Energy. *Advances in Materials Science and Engineering*, 2016, 1–11. <https://doi.org/10.1155/2016/6027812>
- Kim, S.-E., Lee, D.-H., & Ngo-Huu, C. (2007). Shaking table tests of a two-story unbraced steel frame. *Journal of Constructional Steel Research*, 63(3), 412–421. <https://doi.org/10.1016/j.jcsr.2006.04.009>
- Ostachowicz, W. ;, Radzienski, M. ;, Cao, M. ;, & Xu, W. ; (2018). Novel techniques for damage detection based on mode shape analysis. In *Vibration-Based Techniques for Damage Detection and Localization in Engineering Structures* (pp. 173–196). World Scientific. <https://doi.org/https://doi.org/10.1142/q0145>

- Pandey, A. K., Biswas, M., & Samman, M. M. (1991). Damage Detection from Changes in Curvature Mode Shape. *Journal of Sound and Vibration*, *145*(2), 321–332.
- Roy, K. (2017). Structural Damage Identification Using Mode Shape Slope and Curvature. *Journal of Engineering Mechanics*, *143*(9), 04017110. [https://doi.org/10.1061/\(ASCE\)EM.1943-7889.0001305](https://doi.org/10.1061/(ASCE)EM.1943-7889.0001305)
- Roy, K., & Ray-chaudhuri, S. (2013). Fundamental mode shape and its derivatives in structural damage localization. *Journal of Sound and Vibration*. <https://doi.org/10.1016/j.jsv.2013.05.003>
- Rytter, A. (1993). Vibrational Based Inspection of Civil Engineering Structures. *Fracture and Dynamics*, *R9314*(44).
- Wahab, M. M. A., & Roeck, G. De. (1999). Damage detection in bridges using modal curvatures: application to a real damage scenario. *Journal of Sound and Vibration*, *226*(2), 217–235.
- Wu, D., Yamazaki, Y., Sawada, S., Sakata, H., & Asce, M. (2018). Shaking Table Tests on 1 = 3-Scale Model of Wooden Horizontal Hybrid Structure, *144*(2017), 1–17. [https://doi.org/10.1061/\(ASCE\)ST.1943-541X.0002115](https://doi.org/10.1061/(ASCE)ST.1943-541X.0002115).
- Ye, J., & Jiang, L. (2018). Simplified analytical model and shaking table test validation for seismic analysis of mid-rise cold-formed steel composite shear wall building. *Sustainability*, *10*(9), 3188. <https://doi.org/10.3390/su10093188>
- Zhu, H., Li, L., & He, X. (2011). Damage detection method for shear buildings using the changes in the first mode shape slopes. *Computers and Structures*, *89*, 733–743. <https://doi.org/10.1016/j.compstruc.2011.02.014>