## Operational Modal Analysis With Blind Source Separation Using Sparse Component Analysis: A Comparison Study

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Over the past few decades, many innovative approaches have been developed in order to identify the dynamic characteristics of a system. In this article, the advantages and drawbacks of sparse component analysis (SCA), a blind operational modal analysis, have been studied in comparison to other methods. By implementing the SCA method, the modal characteristics of the benchmark structure, including natural frequencies and mode shapes, could be accurately extracted based solely on the output signals. In this study, the application of the SCA method to the MIT Green Building benchmark has been investigated and compared with independent component analysis (ICA) and sequential broad learning (BLS). The results have been compared with other methods, indicating that the SCA algorithm meets a high accuracy and reduces the computational complexity.