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Fourier and POD Analyses of the Floor-Pressure Signature in a Low-Mach-Number Shallow Cavity[1] AHMED NAGUIB, Michigan State University — An experimental investigation of the pressure fluctuations on the bottom of a low-Mach-number ($M < 0.1$) cavity flow was undertaken using a sixteen-microphone array to resolve the frequencies *as well as* the wavenumbers associated with the wall-pressure signature. Both Fourier and POD analyses of the array data were utilized to identify the dominant cavity unsteadiness modes. In the present work, the results from the two different approaches are examined to provide insight into the strength and limitation of each of the techniques in capturing the proper cavity-flow physics. The effect of different cavity Reynolds numbers and aspect ratios on the results are also considered.

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