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Using new graphics and physical arguments to make sense of frequencies of large-N normal mode systems CHRIS MURRELL, BRETT CASWELL, GREGORY BEUHLER, HUNTER CLOSE, Texas State University-San Marcos — Imagine a system of N masses alternating with $N+1$ springs in a line between two walls, with all motion constrained to the line. This system has N normal modes, each with its own frequency. In a companion talk, we present how we used Mathematica to generate the frequencies of these normal modes, no matter how large N is. In this talk, we describe patterns we found in the frequencies, we explain physically why these patterns should be expected, and we generalize our physical arguments to further abstract our understanding of symmetry.

Chris Murrell
Texas State University-San Marcos

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