

1154-Q1-2821 **Douglas B Meade*** (meade@math.sc.edu), Department of Mathematics, University of South Carolina - Columbia, Columbia, SC 29208. *Using Interactive Visualizations to Stimulate Conceptual Understanding in Differential Equations.*

The phenomenon of beats in the solution of a periodically-forced spring-mass problem can be difficult for students to grasp because they become bogged down in the algebra. In this talk I will present my approach to this classic topic that starts with an interactive visualization of solutions to develop a conceptual understanding of the phenomenon before embarking on the algebraic, and trigonometric, manipulations to prove the conjectures made based on the graphical evidence. This approach is also effective in many other situations in differential equations, including the appreciation for multiple representations of solutions to first-order (linear and nonlinear) systems of differential equations. (Received September 18, 2019)