



*Structural Dynamics and Acoustic Systems Laboratory  
University of Massachusetts Lowell*

*Panel Session*

# *Dynamic Substructuring*

*Dr. Peter Avitabile  
Structural Dynamics and Acoustic Systems Laboratory  
Mechanical Engineering Department  
University of Massachusetts Lowell*



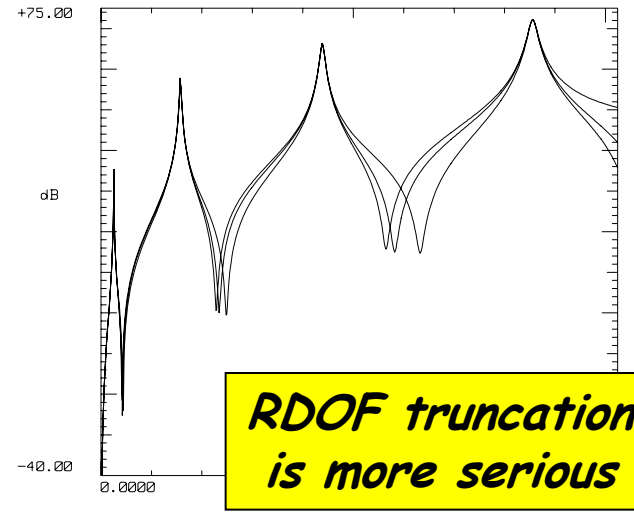
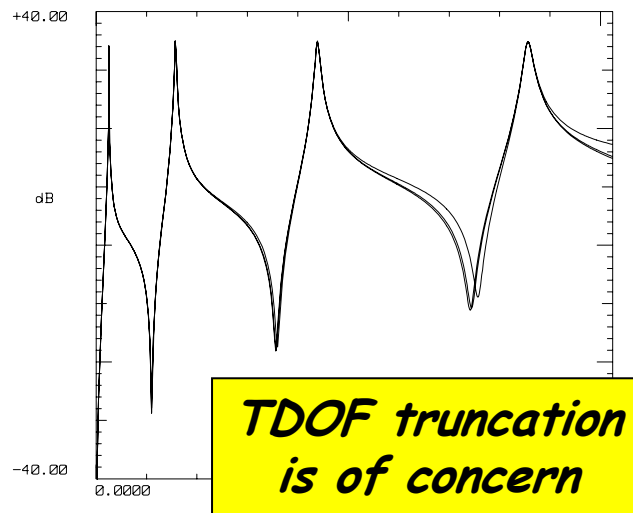
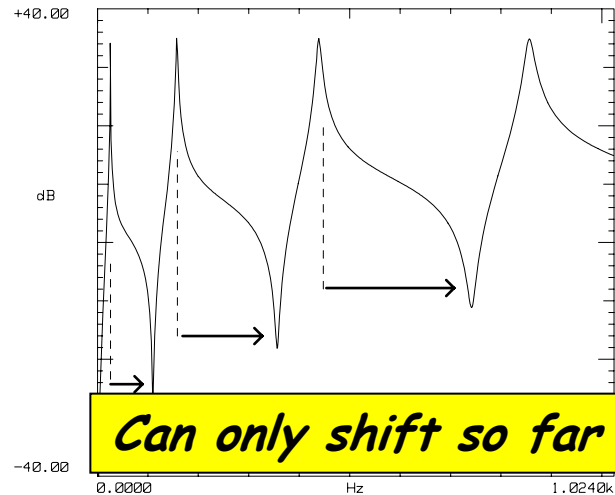
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## *One big problem in Dynamic Substructuring*

- Anti-resonances are physical roadblocks to moving system resonances*
- Poles are global and anti-resonances are not*
- Truncation effects anti-resonance not poles*
- Any inappropriate shifting of the anti-resonance causes an inconsistent effect in one measurement to another "in the big picture"*
- Frequency based substructuring is sensitive to it*
- Component uncoupling is even more sensitive to it*

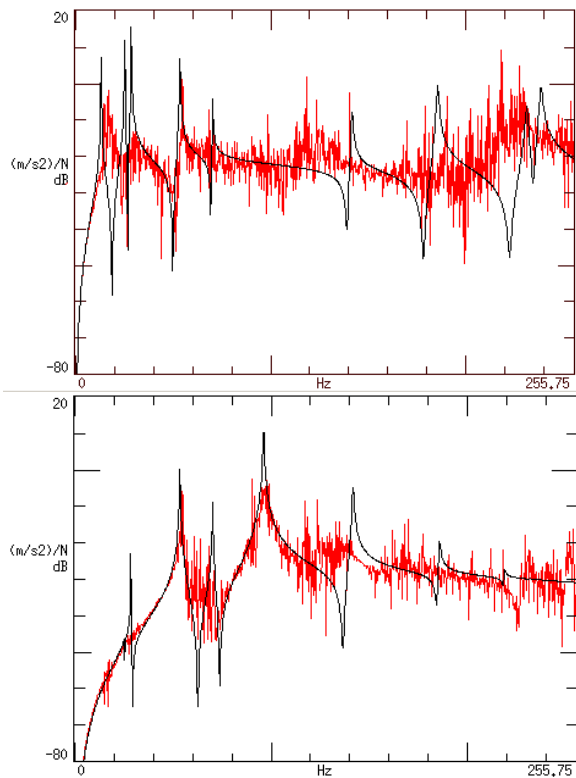


# Anti-resonances are physical roadblocks

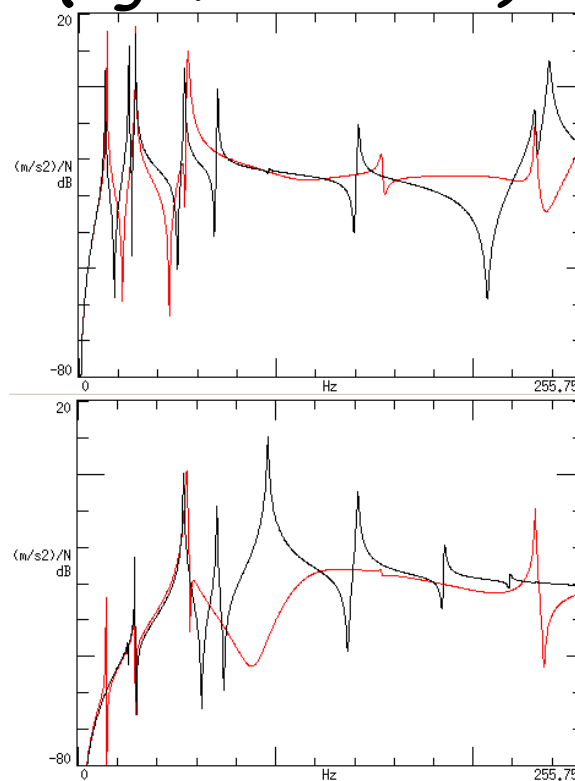


# Coupling Systems - a hard problem

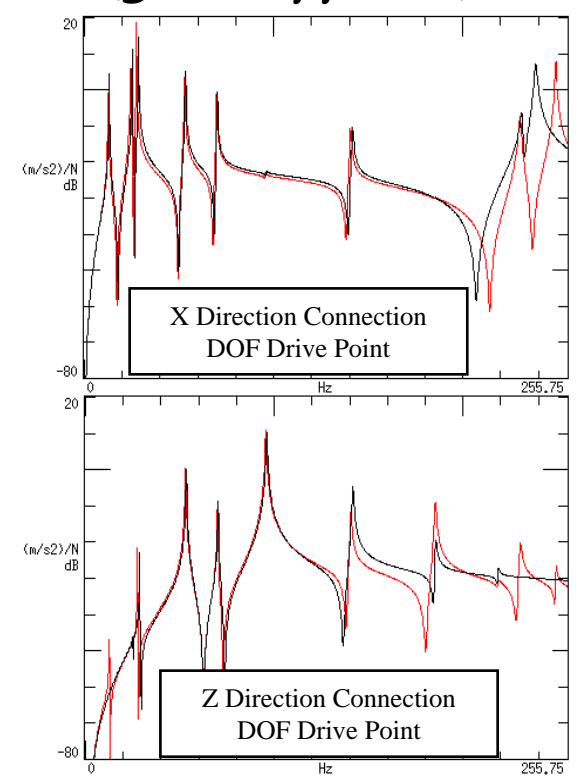
**Noisy FRFs**



**MPE smoothed FRFs  
(significant error)**



**VIKING smoothed  
(good approx.)**



# Decoupling Systems - an even harder problem

