

IF YOU MISSED THE ORGAN DEMONSTRATION

Quiz #### (*Counts Double*)

Due: December 1, 2015

Physics 1320

Music & Physics

Prof. Tunks & Olness

In place of the organ recital/demonstration, please do the following.

(Note, you can do EITHER the organ demo or the assignment, but NOT BOTH!)

Choose a large well known campus performance room

(Perkins Chapel, Bob Hope Auditorium, O'Donnell Hall, etc.,).

Your mission is to make an accurate acoustical assessment of the room.

Include the following items.

(I expect this will take you about an 2 hours to do a good job and get full credit.)

- Compute the total volume of the room.
- Compute the total surface area of the room.
- Itemize the types of wall/floor/ceiling coverings, and compute the effect to these items.
- Compute the reverberation time of the room for $f=1000\text{Hz}$.
- Based on this value, estimate the reverberation time of the room for $f=100\text{Hz}$ and $f=10,000\text{Hz}$. Comment on differences.
- Evaluate the room for acoustical problems. Identify potential problems such as hi/lo frequency loss, echos, intimacy, etc.
- Include other comments or observations about the design of the room.