Aeroacoustics Final Exam Key Points 刘宇老师

1. Basic Sources
   脉动/振荡球源

2. Discontinuity
   Reflection/Transmission

3. Ray Theory

4. Sound Source-Dimensional Analysis

5. Image
   Free and Rigid type

1) mean square; 2)geometry; 3)power

Example 7.1 A very small spherically symmetric acoustic transmitter is operated at a radian frequency w at depth h below the (free ocean surface.)

Show that the radiated sound power is given by:

$$P = \frac{(mw)^2 \rho_0}{4\pi c} \left[1 - \frac{\sin(2kh)}{2kh} \right]$$

(where m^2 is the mean square of volume outflow from the source) ①.

To what depth should such a transmitter be lowered in order to achieve 50% of its (deep) water radiation efficiency at a frequency of 100 Hz ? h 为 ∞