Physics 224 **Fall 2000**

Discoveries and Inventions of Modern Physics **due 11:00 am Tuesday Oct. 31**

PROBLEM SET 5

Oct. 26 Colloquium: "Big Fun with Small Structures: Nanotubes"

Prof. A. Zettl, UC Berkeley

3:30 pm, 101 Rowland Hall

1. What will your final report be on? To find possible topics, look at *More Things in Heaven and Earth: A Celebration of Physics at the Millennium*, *The New Physics*, or Scientific American. Write your answer on a separate sheet of paper.

2. Eisberg and Resnick problem 12.21.

3. Eisberg and Resnick problem 12.22(a).

4. How does the transition temperature T_C depend on the number of particles N if E=pc for Bose condensation? (Hint:You don't have to evaluate any integrals. Just try scaling, i.e., make the variables in the integral dimensionless. Your answer should be of the form $T_C \sim N^\alpha$. Find α.)