PHYS 483 Problem Set 7

Date: Tuesday, May 13th, 2003
Due date: Tuesday, May 20th, 2003

- **Problem 1** (30 points) *Introduction to Algorithms, page 253, exercise 13.3-1*

  Give a recursive version of the TREE-INSERT procedure.

- **Problem 2** (30 points) *Introduction to Algorithms, page 254, exercise 13.3-3*

  We can sort a given set of n numbers by first building a binary search tree containing these numbers (using TREE-INSERT repeatedly to insert the numbers one by one) and then printing the numbers by an inorder tree walk. What are the worst-case and best-case running times for this sorting algorithm?

- **Problem 3** (40 points) *In essence, same problem as 13.3-5.*

  Rewrite TREE-DELETE so that no key-copying happens, and the node that is actually spliced out of the tree is the node that is given to the procedure in the first place. In other words, keys and other fields in any object must remain intact.