Physics 601
Dr. Dragt
Fall 2002

Reading Assignment #8:

1. Dragt

   (a) MORE ABOUT ROTATIONS and LIE GROUPS.

   (b) MORE NOTES ON ROTATIONS.

   (c) Section 3.7 starting with the penultimate paragraph on page 169 through the end of the section. Don't worry about the symplectic group or what it means to be *simple*.

2. Goldstein

   (a) Sections 4.9 and 4.10 of Chapter 4.

   (b) Sections 5.1 through 5.4 of Chapter 5.

### Problem Set 8 due Monday, 11/11/02

70. Verify that $\mathrm{tr}[(\boldsymbol{u} \cdot \boldsymbol{J})^2] = -2\boldsymbol{u} \cdot \boldsymbol{u}$ and that $(\boldsymbol{u} \cdot \boldsymbol{J})^3 = -(\boldsymbol{u} \cdot \boldsymbol{u})(\boldsymbol{u} \cdot \boldsymbol{J})$.

71. DMNR2 (Problem 2 of Dragt MORE NOTES ON ROTATIONS).

72. DMNR3.

73. DMNR4.

74. DMNR5.

75. DMNR6.

All problems worth 10 points each.