

**Problem Set 4**  
**ESS570 G&H**  
**Winter 2017**

**Due Friday March 3, 2017**

1. Nicholson problem # 7.3 "Langmuir Waves" (note: 'consider the electron fluid equations in the differential form (7.31) to (7.33)' and note 7.3 (a) first sign is + :  
( $\partial_t^2 + \omega_e^2$  - etc... )
2. Nicholson problem # 7.5 "Upper hybrid vs. right cutoff frequency"
3. Nicholson problem # 7.6 "Upper hybrid wave"
4. Nicholson Problem #7.7 "Model of Collisions"
5. Nicholson problem # 7.8 "Low frequency dielectric constant"
6. Nicholson Problem #7.9 "Kunkel's Problem"

N.B.: There will be one final assignment to be due (nominally) the last day of class, but accepted until Wednesday of Finals week (in order to get a grade on-time.).