First Presentation

Due Thursday September 26, 2002, In class

Prepare a roughly twenty minute presentation on one of the following topics:

1. Classical Potts Models

2. Classical XY and Heisenberg Models

You can decide amongst yourselves who does which topic. In addition to your presentation, it would also be helpful to prepare a *brief* handout summarizing the key features of your models.

Your presentation should include most of the following information.

1. The critical exponents in two and three dimensions. How and when were these exponents calculate? Are they exact?

2. The phase diagram in two and three dimensions.

3. What do the ordered phases look like? What are the order parameters?

4. The upper critical dimension.

5. Experimental realizations of the model.

6. The universality class. What other models and systems belong to this universality class?

7. Other stuff that you found interesting. For example, what more exotic variations of the model have been studied – e.g., external fields, random interactions, random fields. What has been found?

We will evaluate your presentation roughly as follows. Twenty-five percent of the evaluation will be based on the organization and preparation of the presentation, the remaining percent will be based on your selection and explanation of your content.