

QUESTIONNAIRE

Name: _____ Taking for credit? _____

Department: _____ Year: _____ Status: _____

Email address: _____ UCSC phone number: 459-_____

Your background for this course

1. Please list briefly the most advanced astronomy courses you have taken and the corresponding instructor(s) and textbook(s) (e.g., undergrad intro survey/Abell, senior survey/Shu, grad galaxies/Faber/Binney&Tremaine):

2. Please list any courses you have taken/books you have studied on general relativity (e.g., Schutz, Hartle, Carroll, Weinberg, MTW):

3. Please list briefly the most advanced quantum physics course you have taken (e.g., junior QM, grad intro QM, intro QFT, advanced QFT):

4. Please list any courses you have taken/books you have studied on particle physics (e.g., undergrad Intro/Perkins, grad Particles/Seiden, grad Weak Interactions/Georgi):

5. Please list any other material you have studied that might be relevant:

COURSE TOPICS PREFERENCES

The following topics are roughly in order of increasing use of speculative particle physics theory. Relative emphasis on each topic in this course will depend on the level of student interest. Please indicate your personal interest in each topic with ++, +, 0, -, or -- (greatest to least interest):

___ Big bang nucleosynthesis and the Boltzmann equation: baryon, neutrino, and WIMP abundances

___ Structure formation: spectra and evolution of density inhomogeneities; cold dark matter theory and variants

___ Cold dark matter theory vs. data: galaxies, clusters, and large scale structure; semi-analytic model and simulations

___ Dark matter halo structure and substructure; angular momentum issues; issues in hydrodynamics, star formation, and feedback

___ CMB anisotropies, weak lensing, and other probes of inhomogeneities

___ Inflation and dark energy/"quintessence"

___ Phase transitions in the early universe: walls, strings, and monopoles

___ Baryogenesis

___ Particle physics of dark matter candidates: Axions, WIMPs

___ Toward the Planck epoch: multiverse theories, string cosmology, etc.

List any other topics you would like included

Your term project topic

You should start thinking about the topics you might work on for your term project (to be presented as a talk in class or during a separate session toward the end of the quarter).

The topic should be directly connected with the course, such as the ages of globular clusters, or theories of large scale structure with decaying particles. Please list one or two tentative topics you might consider: