

# Quantum Field Theory I

## Physics 6047, Spring 2014

Lam Hui

*My coordinates.* Pupin 1026. Phone: 854-7241. Email: [lhui@astro.columbia.edu](mailto:lhui@astro.columbia.edu).  
URL: <http://www.astro.columbia.edu/~lhui>.

*Teaching assistant.* TBD.

*Class Meeting Time/Place.* Monday and Wednesday, 5:30 pm - 7 pm at Pupin 420.

*Prerequisites.* Quantum mechanics, mechanics, electrodynamics and special relativity at the graduate/advanced undergraduate level. **If you are an undergraduate student, you must obtain explicit permission from me.**

*Requirements.* Problem sets. The last problem set will serve as a take-home final.

*Topics covered.* Scalar and Dirac quantum field theory. Renormalization. Perturbation theory. QED if time permits.

*Texts.* The main texts are

- Quantum Field Theory, Mark Srednicki, Cambridge University Press
- Quantum Field Theory in a Nutshell, Anthony Zee, Princeton University Press

Both are available at Book Culture on W. 112th Street. The website is <http://www.bookculture.com>. Other recommended references include:

- Quantum Theory of Fields Vols. 1 and 2, S. Weinberg, Cambridge University Press.
- An Introduction to Quantum Field Theory, M. E. Peskin and D. V. Schroeder, Westview Press.
- Modern Quantum Field Theory, T. Banks, Cambridge University Press.
- Aspects of Symmetry, S. Coleman, Cambridge University Press.
- Quantum Field Theory, L. Brown, Cambridge University Press.
- Field Theory, a Modern Primer, P. Ramond, Addison-Wesley.