International Workshop on Hot and Dense Nuclear and Astrophysical Matter

INTRODUCTION TO QUANTUM FIELD THEORY

C. A. Dominguez

UCT & US

TUTORIAL 1: Bound states & scattering states in non-relativistic quantum mechanics. Solving the Klein-Gordon equation for the step function. Dealing with Gamma matrices.

TUTORIAL 2: Sigma meson decay into two pions, and pion-pion scattering in the sigma model.

TUTORIAL 3: Detailed calculations of charge and mass renormalization.

TUTORIAL 4: Temperature and density in QCD. The Dolan-Jackiw propagator. Signals for quark-gluon deconfinement.