A code-generated Monte Carlo Importance Function

Introduction

- Describes method that automatically chooses importance function for MC
  - simple
  - easily implemented
  - eliminates need for intuition
- WW generated by tracking particle weights entering and leaving a region

Automatic Weight Window Generation

- WW generation is at least as effective as importance sampling
- Choosing Whigh and Wlow for weight window is difficult
  - Booth describes a method where a problem with a specified importance function and produces the optimum weight window that can be used
  - This method defines
    - Wlow = 1/(k*N) (sumWin+sumWout)
    - Whigh = k*Wlow
    - k = constant
    - N = number of particles

Results

- Code generated WWs are as good as importance sampling by experienced MC user
- Energy-dependent WW ¿¿ best geometrical importance sampling
- Generated WWs give insight as to the energy and geometry of the particles in each region
- This is very compatible with other VR techniques
- Disadvantage:
  - All regions of phase space are populated equally
  - can be controlled by using other VR techniques