

## Take Home Exam I

Submission Date – August 30, 2024  
Course – PH505

Total Marks = 10

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Considering the deuteron potential of strength  $V_0 = -40$  MeV and the range 2.1 fm, find out the ground state energy by variational method using the Monte Carlo technique. Also plot the trial wavefunction and the final wavefunction after minimizing the energy.

Note: *Write the algorithm in C++.*

Please mention your name and roll number inside the code and the file extension should have your roll number.

For example, Code Name – main\_rollno.C, pdf file name – figure\_rollno.pdf

Send the C++ code and the pdf file to [basanta@iitb.ac.in](mailto:basanta@iitb.ac.in).

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