

Exam questions on discipline: Modern computational methods in nuclear physics contents

Part (Блок) № 1

1. Introduction to the course "Programming and computer calculations in physics"
2. Introduction to the system of Mathematica
3. Model of calculating
4. Numbers. Their representation and operations over them
5. Arithmetic: the greatest common divisor and least common multiple
6. Arithmetic: the decomposition of integers into prime factors
7. Arithmetic: primenumbers
8. Division with remainder, deductions, comparisons
9. The Chinese remainder theorem
10. Numerical functions
11. Multimedia: geometry, graphics, cinema, sound
12. Factorization Factor Integer ECM
13. Plotting
14. Linear programming
15. Nuclear Forces

Part (Блок) №2

16. Nuclear Models
17. Factorization of very large numbers
18. Nuclear Forces and Nuclear Models
19. Basic Concepts of Nuclear Physics
20. Toward a Unified Model Description of Nuclei
21. Introduction to Nuclear Interactions and Reactions
22. Coulomb Excitation
23. Compound Nucleus Reactions
24. Other Reactions
25. Some Selected Applications of Nuclear Physics
26. Radioactive Decay Laws
27. Alpha, Proton, Heavy Cluster
28. Spontaneous Fission Decays
29. Gamma Decay
30. Internal Conversion

Part (Блок) №3

31. Pair Production
32. Beta Decay
33. Radioactive Decay
34. Introduction to Nuclear Interactions and Reactions
35. Reaction Kinematics
36. Fission and Fusion: Atomic Energy Utilization
37. Some Selected Applications of Nuclear Physics
38. Nuclear Interactions and Reactions
39. Magnetic Dipole Hyperfine Interaction
40. Electric Quadrupole Hyperfine Interaction
41. Particle Families and Interactions
42. Conservation Rules
43. High-Energy Physics
44. Some Selected Applications of Nuclear Physics
45. Introduction to Nuclear Interactions and Reactions