

Table of Contents

Introduction	1
Lecture 1. <u>Fundamental Problems of Ergodic Theory</u>	3
Lecture 2. <u>The Problem of the Existence of an Invariant Measure</u>	16
Lecture 3. <u>Translations on Compact Abelian Groups, Their Applications and Generalizations</u>	23
Lecture 4. <u>Certain Applications of Ergodic Theory to the Theory of Numbers</u>	34
Lecture 5. <u>A Second Proof of the Ergodicity of the Rotation of a Circle and Permutations</u>	39
Lecture 6. <u>Dynamical Systems with Continuous Time</u>	47
Lecture 7. <u>Linear Hamiltonian Systems</u>	55
Lecture 8. <u>Ergodic Theory of an Ideal Gas</u>	64
Lecture 9. <u>Geodesic Flows on Riemannian Manifolds</u>	71
Lecture 10. <u>Billiards</u>	81
Lecture 11. <u>Dynamical Systems on the Two Dimensional Torus</u>	90
Lecture 12. <u>Dynamical Systems Arising in the Theory of Probability</u>	98
Lecture 13. <u>Gaussian Systems</u>	110
Lecture 14. <u>The Entropy of a Dynamical System</u>	119
Lecture 15. <u>The Entropy of a Dynamical System (Continuation)</u>	128
<u>The Entropy of Billiards inside a Polygon</u>	140