Table of Contents

PREFACEvii INTRODUCTIONix		
Part I		
CHERENKOV RADIATION IN ISOTROPIC AND ANISOTROPIC MEDIA: THEORY AND EXPERIMENTAL VERIFICATION		
Chapter 1. THEORY OF CHERENKOV RADIATION IN AN ISOTROPIC		
MEDIUM		
§ 1. The Tamm–Frank theory $(\epsilon \neq 1, \mu = 1)$ 1		
§ 2. Cherenkov radiation of a charged particle in a transparent		
ferrodielectric $(\epsilon \neq 1, \mu \neq 1)$ 13		
§ 3. Quantum theory of Cherenkov radiation 14		
§ 4. Cherenkov radiation and ionization losses		
§ 5. The inverse Cherenkov effect and two principles of coherent acceleration of charged particles		
§ 6. Radiation of a charge moving with a uniform velocity along		
a circular path in a dispersive medium		
§ 7. Cherenkov radiation of a particle moving along the axis of a		
cylindrical tunnel with small radius $(r < \lambda)$		
§ 8. Cherenkov radiation of a particle moving close to a plane		
interface between two media		
§ 9. Cherenkov radiation in a waveguide		
\$10. The mesonic Cherenkov effect		
\$11. The "vacuum" Cherenkov effect 46		
Chapter 2. PROPERTIES OF CHERENKOV RADIATION AND THEIR		
EXPERIMENTAL VERIFICATION 49		
§12. Angular distribution of Cherenkov radiation		
\$13. Cherenkov radiation threshold in isotropic media		
\$14. Cherenkov radiation intensity and its spectral distribution 67		
\$15. Polarization properties of Cherenkov radiation		
\$16. The pulse character of Cherenkov radiation and its duration 84		

§ 17.	The characteristic properties of Cherenkov radiation and bremsstrahlung
\$18. \$19.	CHERENKOV RADIATION OF A PARTICLE WITH A MAGNETIC MOMENT AND SPIN IN AN ISOTROPIC MEDIUM
Chapter 4.	PROPERTIES OF THE CHERENKOV RADIATION GENERATED BY ELECTRIC AND MAGNETIC DIPOLES AND MULTIPOLES. DOPPLER EFFECT IN AN ISOTROPIC MEDIUM AND ANOMALOUS
\$21	THOMSON SCATTERING
, D 1,	direction of motion
§22.	Arbitrarily oriented electric and magnetic dipoles and
	multipoles 113
§23.	Doppler effect in an isotropic medium and anomalous Thomson scattering
Chapter 5.	THEORY AND PROPERTIES OF CHERENKOV RADIATION
	IN ANISOTROPIC MEDIA AND THEIR EXPERIMENTAL
	VERIFICATION
§24.	Collimation properties of the radiation emitted by a particle
8 D E	moving along the axis of a uniaxial crystal
§20.	The radiation energy and its spectral distribution for a particle traveling along the axis of a uniaxial crystal
\$26.	
320.	cularly to the optic axis of a uniaxial crystal
§27.	Verification of the properties of the Cherenkov radiation in a
	uniaxial crystal of icelandic spar
§28 .	Motion of a charged particle at an angle to the axis of a
	uniaxial crystal
§29.	Motion of a particle in a doubly anisotropic uniaxial crystal 172
\$30,	
§ 31,	Properties of Cherenkov radiation in a biaxial crystal 183
\$32.	n mandetale a several an analysis and the metal operation of the several dependence of a several dependence of the
	medium
§33.	
§34.	. Cherenkov radiation in an isotropic optically active medium 199
§35.	
	crystal and their experimental verification

\$36.	Motion of a particle in an anisotropic and gyrotropic
	ferrodielectric 207
\$37.	Cherenkov radiation from electric and magnetic dipoles
	traveling along the axis of a uniaxial crystal 211
\$38.	Cherenkov radiation in a waveguide loaded with an anisotropic
	dielectric 213
\$39.	The Doppler effect in an anisotropic medium 215
§40.	The Doppler effect in a plasma subjected to a magnetic field 218
BIBLIOGRAPH	IY 221
APPENDIXES	
LIST OF ABE	REVIATIONS