Contents

For	reword	ix
	ivier Darrigol incaré's Light	
1	Optical ether theories	3
2	Diffraction theory	12
3	The nature of white light	22
4	Optics and electromagnetism	25
	Conclusions	48
	Appendix – Light-based measurement in the Lorentz-Poincaré ether theory	49
	ain Chenciner incaré and the Three-Body Problem	
1	Introduction	51
2	General problem of dynamics	55
3	Next approximation: Lagrange's and Laplace's secular system	63
4	Periodic solutions 1) Local existence by continuation	68
5	Quasi-periodic solutions 1) Formal aspects: Lindstedt series	74
6	Periodic solutions 2) The source of complexity	89
7	Resonances 1) Bohlin series	98
8	Integral invariants and Poisson stability	103
9	Stroboscopy 1) Planar Circular Restricted Three-Body Problem	111
10	Resonances 2) Homoclinic and heteroclinic tangles	117
11	Quasi-periodic solutions 2) Analytic aspects: K.A.M. stability \dots	122
12	Stroboscopy 2) What we understand of the dynamics of the return map	126
13	A great principle of physics and some collisions	133

vi Contents

14	Resonances 3) diffusion	138
15	Surprises of a eulogy	140
	A seminar	140
	Thanks	141
18	Regret	141
19	Note on the references	141
	References	142
	urent Mazliak incaré's Odds	
	Introduction	151
1	First part: the discovery of probability	155
2	Second part: construction of a probabilistic approach	160
3	Third part: an uneven heritage	176
	Conclusion	187
	References	188
	ançois Béguin enri Poincaré and the Uniformization of Riemann Surfaces	
1	Introduction	193
2	Uniformization modulo a finite number of points	197
3	The continuity method and the uniformization of algebraic curves $\ldots\ldots$	203
4	Uniformization of functions	207
5	Solving the Liouville equation: an alternative method for uniformizing algebraic Riemann surfaces	212
6	The "sweeping method": a physical proof of the uniformization theorem	220
	References	228
Ph	uilippe Worms	
Harmony and Chaos (Film)		