Type Theory

Emily

February 27, 2023

INTRODUCTION

This chapter is currently empty, being just a stub for a topic I want to learn someday.

A Appendix Other Chapters

Contents

Set Theory

5. Sets

6. Constructions With Sets

7. Indexed and Fibred Sets

Appendices			
A Other	r Chapters		
Logic and Model Theory		٠.	Relations
1. Logic		9.	Posets
2. Model	odel Theory	Categ	ory Theory
Type Theory		10.	Categories
 Type Th Homoto 	neory opy Type Theory	12.	Constructions With Categories Limits and Colimits Ends and Coends

14. Kan Extensions15. Fibred Categories

16. Weighted Category Theory

Categorical Hochschild Co/Homology

- 17. Abelian Categorical Hochschild Co/Homology
- Categorical Hochschild Co/Homology

Monoidal Categories

- 19. Monoidal Categories
- 20. Monoidal Fibrations
- 21. Modules Over Monoidal Categories
- 22. Monoidal Limits and Colimits
- 23. Monoids in Monoidal Categories
- 24. Modules in Monoidal Categories
- 25. Skew Monoidal Categories
- 26. Promonoidal Categories
- 27. 2-Groups
- 28. Duoidal Categories
- 29. Semiring Categories

Categorical Algebra

- 30. Monads
- 31. Algebraic Theories
- 32. Coloured Operads
- 33. Enriched Coloured Operads

Enriched Category Theory

- 34. Enriched Categories
- 35. Enriched Ends and Kan Extensions
- 36. Fibred Enriched Categories
- Weighted Enriched Category Theory

Internal Category Theory

- 38. Internal Categories
- 39. Internal Fibrations
- 40. Locally Internal Categories
- 41. Non-Cartesian Internal Categories
- 42. Enriched-Internal Categories

Homological Algebra

43. Abelian Categories

- 44. Triangulated Categories
- 45. Derived Categories

Categorical Logic

- 46. Categorical Logic
- 47. Elementary Topos Theory
- 48. Non-Cartesian Topos Theory

Sites, Sheaves, and Stacks

- 49. Sites
- 50. Modules on Sites
- 51. Topos Theory
- 52. Cohomology in a Topos
- 53. Stacks

Complements on Sheaves

54. Sheaves of Monoids

Bicategories

- 55. Bicategories
- 56. Biadjunctions and Pseudomonads
- 57. Bilimits and Bicolimits
- 58. Biends and Bicoends
- 59. Fibred Bicategories
- 60. Monoidal Bicategories
- 61. Pseudomonoids in Monoidal Bicategories

Higher Category Theory

- 62. Tricategories
- 63. Gray Monoids and Gray Categories
- 64. Double Categories
- 65. Formal Category Theory
- 66. Enriched Bicategories
- 67. Elementary 2-Topos Theory

Simplicial Stuff

- 68. The Simplex Category
- 69. Simplicial Objects
- 70. Cosimplicial Objects
- 71. Bisimplicial Objects

- 72. Simplicial Homotopy Theory
- 73. Cosimplicial Homotopy Theory

Cyclic Stuff

- 74. The Cycle Category
- 75. Cyclic Objects

Cubical Stuff

- 76. The Cube Category
- 77. Cubical Objects
- 78. Cubical Homotopy Theory

Globular Stuff

- 79. The Globe Category
- 80. Globular Objects

Cellular Stuff

- 81. The Cell Category
- 82. Cellular Objects

Homotopical Algebra

- 83. Model Categories
- 84. Examples of Model Categories
- 85. Homotopy Limits and Colimits
- 86. Homotopy Ends and Coends
- 87. Derivators

Topological and Simplicial Categories

- 88. Topologically Enriched Categories
- 89. Simplicial Categories
- 90. Topological Categories

Quasicategories

- 91. Quasicategories
- 92. Constructions With Quasicategories
- 93. Fibrations of Quasicategories
- Limits and Colimits in Quasicategories

- 95. Ends and Coends in Quasicategories
- 96. Weighted ∞-Category Theory
- 97. ∞-Topos Theory

Cubical Quasicategories

98. Cubical Quasicategories

Complete Segal Spaces

99. Complete Segal Spaces

∞-Cosmoi

100. ∞-Cosmoi

Enriched and Internal ∞-Category Theory

- 101. Internal ∞-Categories
- 102. Enriched ∞-Categories
- $(\infty, 2)$ -Categories
- 103. $(\infty, 2)$ -Categories
- 104. 2-Quasicategories
- (∞, n) -Categories
- 105. Complicial Sets
- 106. Comical Sets

Double ∞-Categories

107. Double ∞-Categories

Higher Algebra

- 108. Differential Graded Categories
- 109. Stable ∞-Categories
- 110. ∞-Operads
- 111. Monoidal ∞-Categories
- 112. Monoids in Symmetric Monoidal ∞-Categories
- 113. Modules in Symmetric Monoidal ∞-Categories
- 114. Dendroidal Sets

Derived Algebraic Geometry

115. Derived Algebraic Geometry

116. Spectral Algebraic Geometry

Condensed Mathematics

117. Condensed Mathematics

Monoids

- 118. Monoids
- 119. Constructions With Monoids
- 120. Tensor Products of Monoids
- 121. Indexed and Fibred Monoids
- 122. Indexed and Fibred Commutative Monoids
- 123. Monoids With Zero

Groups

- 124. Groups
- 125. Constructions With Groups

Algebra

- 126. Rings
- 127. Fields
- 128. Linear Algebra
- 129. Modules
- 130. Algebras

Near-Semirings and Near-Rings

- 131. Near-Semirings
- 132. Near-Rings

Semirings

- 133. Semirings
- 134. Commutative Semirings
- 135. Semifields
- 136. Semimodules

Hyper-Algebra

- 137. Hypermonoids
- 138. Hypersemirings and Hyperrings
- 139. Quantales

Commutative Algebra

140. Commutative Rings

More Algebra

- 141. Plethories
- 142. Graded Algebras
- 143. Differential Graded Algebras
- 144. Representation Theory
- 145. Coalgebra
- 146. Topological Algebra

Real Analysis, Measure Theory, and Probability

- 147. Real Analysis
- 148. Measure Theory
- 149. Probability Theory
- 150. Stochastic Analysis

Complex Analysis

- 151. Complex Analysis
- 152. Several Complex Variables

Functional Analysis

- 153. Topological Vector Spaces
- 154. Hilbert Spaces
- 155. Banach Spaces
- 156. Banach Algebras
- 157. Distributions

Harmonic Analysis

158. Harmonic Analysis on \mathbb{R}

Differential Equations

- 159. Ordinary Differential Equations
- 160. Partial Differential Equations

p-Adic Analysis

- 161. p-Adic Numbers
- 162. p-Adic Analysis
- 163. p-Adic Complex Analysis
- 164. p-Adic Harmonic Analysis
- 165. p-Adic Functional Analysis

- **166.** *p*-Adic Ordinary Differential Equations
- 167. *p*-Adic Partial Differential Equations

Number Theory

- 168. Elementary Number Theory
- 169. Analytic Number Theory
- 170. Algebraic Number Theory
- 171. Class Field Theory
- 172. Elliptic Curves
- 173. Modular Forms
- 174. Automorphic Forms
- 175. Arakelov Geometry
- 176. Geometrisation of the Local Langlands Correspondence
- 177. Arithmetic Differential Geometry

Topology

- 178. Topological Spaces
- 179. Constructions With Topological Spaces
- 180. Conditions on Topological Spaces
- 181. Sheaves on Topological Spaces
- 182. Topological Stacks
- 183. Locales
- 184. Metric Spaces

Differential Geometry

- 184. Topological and Smooth Manifolds
- 185. Fibre Bundles, Vector Bundles, and Principal Bundles
- 186. Differential Forms, de Rham Cohomology, and Integration
- 187. Riemannian Geometry
- 188. Complex Geometry
- 189. Spin Geometry
- 190. Symplectic Geometry
- 191. Contact Geometry
- 192. Poisson Geometry

- 193. Orbifolds
- 194. Smooth Stacks
- 195. Diffeological Spaces

Lie Groups and Lie Algebras

- 196. Lie Groups
- 197. Lie Algebras
- 198. Kac-Moody Groups
- 199. Kac-Moody Algebras

Homotopy Theory

- 200. Algebraic Topology
- 201. Spectral Sequences
- 202. Topological *K*-Theory
- 203. Operator *K*-Theory
- 204. Localisation and Completion of Spaces
- 205. Rational Homotopy Theory
- 206. p-Adic Homotopy Theory
- 207. Stable Homotopy Theory
- 208. Chromatic Homotopy Theory
- 209. Topological Modular Forms
- 210. Goodwillie Calculus
- 211. Equivariant Homotopy Theory

Schemes

- 212. Schemes
- 213. Morphisms of Schemes
- 214. Projective Geometry
- 215. Formal Schemes

Morphisms of Schemes

- 216. Finiteness Conditions on Morphisms of Schemes
- 217. Étale Morphisms

Topics in Scheme Theory

- 218. Varieties
- 219. Algebraic Vector Bundles
- 220. Divisors

Fundamental Groups of Schemes

- 221. The Étale Topology
- 222. The Étale Fundamental Group
- 223. Tannakian Fundamental Groups
- 224. Nori's Fundamental Group Scheme
- 225. Étale Homotopy of Schemes

Cohomology of Schemes

- 226. Local Cohomology
- 227. Dualising Complexes
- 228. Grothendieck Duality

Group Schemes

- 229. Flat Topologies on Schemes
- 230. Group Schemes
- 231. Reductive Group Schemes
- 232. Abelian Varieties
- 233. Cartier Duality
- 234. Formal Groups

Deformation Theory

- 235. Deformation Theory
- 236. The Cotangent Complex

Étale Cohomology

- 237. Étale Cohomology
- 238. *ℓ*-Adic Cohomology
- 239. Pro-Étale Cohomology

Crystalline Cohomology

- 240. Hochschild Cohomology
- 241. De Rham Cohomology
- 242. Derived de Rham Cohomology
- 243. Infinitesimal Cohomology
- 244. Crystalline Cohomology
- 245. Syntomic Cohomology
- 246. The de Rham-Witt Complex
- 247. p-Divisible Groups
- 248. Monsky-Washnitzer Cohomology
- 249. Rigid Cohomology

250. Prismatic Cohomology

Algebraic K-Theory

- 251. Topological Cyclic Homology
- 252. Topological Hochschild Homology
- Topological André–Quillen Homology
- 254. Algebraic K-Theory
- 255. Algebraic K-Theory of Schemes

Intersection Theory

- 256. Chow Homology
- 257. Intersection Theory

Monodromy Groups in Algebraic Geometry

258. Monodromy Groups

Algebraic Spaces

- 259. Algebraic Spaces
- 260. Morphisms of Algebraic Spaces
- 261. Formal Algebraic Spaces

Deligne-Mumford Stacks

262. Deligne-Mumford Stacks

Algebraic Stacks

- 263. Algebraic Stacks
- 264. Morphisms of Algebraic Stacks

Moduli Theory

265. Moduli Stacks

Motives

- 266. Tannakian Categories
- 267. Vanishing Cycles
- 268. Motives
- 269. Motivic Cohomology
- 270. Motivic Homotopy Theory

Logarithmic Algebraic Geometry

271. Log Schemes

Analytic Geometry

- 272. Real Algebraic Geometry
- 273. Complex-Analytic Spaces
- 274. Rigid Spaces
- 275. Berkovich Spaces
- 276. Adic Spaces
- 277. Perfectoid Spaces

p-Adic Hodge Theory

- 278. Fontaine's Period Rings
- 279. The *p*-Adic Simpson Correspondence

Algebraic Geometry Miscellanea

- 280. Tropical Geometry
- 281. \mathbb{F}_1 -Geometry

Physics

- 282. Classical Mechanics
- 283. Electromagnetism
- 284. Special Relativity
- 285. Statistical Mechanics
- 286. General Relativity
- 287. Quantum Mechanics
- 288. Quantum Field Theory
- 289. Supersymmetry
- 290. String Theory
- 291. The AdS/CFT Correspondence

Miscellany

- 292. To Be Refactored
- 293. Miscellanea
- 294. Questions