Index

braid fibration, 4
braid axis, 4
change of fibration, 31
closed braid, 4
$H_\theta$-sequence, 18
3-braids, 154
Alexander’s theorem, 5
block-strand template, 16
braid botany problems, 137
braid index, 10, 87
braid isotopy, 11
cone of a braid, 68
destabilization, 12, 224
destabilizing disc, 42
exchange equivalence, 117
exchange move, 13, 224
exchange reducible, 118
generalized Jones conjecture, 67
Jones’ conjecture, 67
Kawamuro cone, 68
Markov’s theorem, 49
Markov’s theorem for unlink, 42
Markov’s Theorem without
Stabilization (MTWS), 161
MTWS for 3-braids, 161
regular braid projection, 10, 16
stabilization, 12
writhe, 10, 87
Yamada’s proof of Alexander’s
theorem, 7
cylindrical projection, 17
$H_\theta$-plane, 4
braid group, 13, 219

band generators, 231
conjugacy class, 14, 220
Dehornoy’s ordering, 221
Dehornoy floor, 225
geometric definition, 226
fundamental braid, 220
generators, 13
mapping classes of punctured disc, 15
cylinder-with-strands, 16
diameter, 15, 226
relations, 13

clap annulus, 47, 156
clap arc, 47
tabs, 159
transverse clasp annulus, 111, 162
contact structure, 88
ambient contact isotopy, 91
contact 1-form, 88
contactomorphism, 89
Legendrian link, 188
Bennequin’s inequality, 194
cusps, 189
front projection, 188
Legendrian botany problems, 277
Legendrian grid number
conjecture, 199
Legendrian isotopy, 190
Legendrian mountain range, 275
Legendrian nonsimplicity, 275
Legendrian Reidemeister moves, 190
Legendrian stabilization, 193
maximal Thurston-Bennequin number, 194
non-destabilizable, 274
rotation number, 191
Thurston-Bennequin number, 191
transverse push-off, 190
up/down cusps, 192
overtwisted contact structure, 102
standard contact structure on $\mathbb{R}^3$, 89
supported by open book, 248
symmetric contact structure on $\mathbb{R}^3$, 89
tight contact structure, 102
transverse link, 91
Bennequin’s inequality, 98
maximal self-linking number, 104
self-linking number, 97
transverse Alexander theorem, 95
transverse botany problems, 138
transverse invariants, 103
transverse isotopy, 91
transverse Markov theorem, 112
transverse Markov theorem for unknot, 109
transverse MTWS, 162
transverse non-simplicity, 146, 163
transverse simplicity, 116
convex surface, 264
as boundary of solid torus, 273
uniform thickness property, 274
bypass, 267
as non-standard change of foliation, 269
bypass rectangle, 271
characteristic foliation, 265
Giroux flexibility theorem, 266
Legendrian realization lemma, 266
rotation number of boundary, 267
Thurston-Bennequin number of boundary, 267
contact vector field, 264
dividing set, 265
Giroux criterion, 265
torus, 272
Legendrian rulings, 273
twisting of a Legendrian, 264
flype, 152, 224
elementary flype, 153
flype template, 152
negative flype, 152
positive flype, 152

braid foliation, 22
a-arc, 29
aa-singularity, 33
ab-singularity, 33
abs-singularity, 46
as-singularity, 46
b-arc, 29
bb-singularity, 33
bad b-arcs, 182
checkerboard tiling, 129
circular foliation, 121
elliptic point, 27
elliptics of type $(\alpha, i - \alpha)$, 73
Euler characteristic calculation for annulus, 75
Euler characteristic calculation for disc, 73
Euler characteristic calculation for sphere, 73
$G_{\epsilon \delta}$ graphs, 80
half-elliptic point, 175
half-hyperbolic singularity, 175
hyperbolic singularity, 27
min/max singularity, 27
mixed foliation, 124
negative singularity, 34
non-singular leaf, 28
non-standard change of foliation, 131
positive singularity, 34
s-arcs, 45
singular leaf, 28
stabilize along singular leaf, 42
standard change of foliation, 63
tiles, 39
valence of an elliptic, 34
valence-one boundary half-elliptic, 177
valence-one elliptic, 42
valence-two elliptic, 54
characteristic foliation, 92
Giroux’s elimination lemma, 92
overtwisted disc, 102
open book foliation, 241
ac-singularity, 254
bc-singularity, 254
circles, 254
co-singularity, 254
cs-singularity, 254
change of foliation, 245
removing valence two elliptics, 247
similarities with braid foliation, 242
stabilizing/destabilizing disc, 243
singular foliation, 21

knot contact homology, 104
knot Floer homology, 104

link, 1
  arc presentation, 129, 168
  arc, 168
  arc destabilization, 174
  arc exchange move, 172
  arc index, 169
  arc stabilization, 174
  Dynnikov disc, 181
  Euler characteristic calculation for
disc, 179
  minimum arc index, 169
  vertex, 168
  vertex exchange move, 173
  winding vertex, 180
braided link diagram, 16
grid diagram, 170
  braided grid diagram, 205
  commutation, 174, 195
  cyclic permutation, 195
  destabilization, 174, 195
  grid number, 170
  NE stabilization, 197
  NW stabilization, 197
  SE stabilization, 197
  stabilization, 174, 195
  stabilization/destabilization tower,
  200
  SW stabilization, 197
  Type I stabilization, 197
  Type N stabilization, 197
link diagram, 16
mirror, 198
oriented, 1
projection, 3
  crossing, 3
  Reidemeister moves, 3
torus knot, 121

open book decomposition, 240
braided link, 240
  Alexander’s trick, 240
  C-isotopic, 258
  conditional Jones conjecture, 258
  Markov’s theorem, 244