

Index

- $D\mathcal{O}_{\{v_i\}}$, 121
 $F(n_1, n_2, \dots, n_k)$, 25
 $I(2, 2)$, 27
 $N(A, r; X)$, 107
 $S^2(n, n), S^2(m, n, p)$, 25
 $S^2(\alpha, \beta, \gamma)$, 54
 $\mathbb{H}^n(K)$, 60
 ∂_{orb} , 23
 \mathcal{N} , 42, 148
- algebraic topology, 118
analytic continuation, 9
analytic geometry, 8
apple turnover, 32
atoroidal, 46
- bad orbifold, 28
base orbifold, 40
bi-Lipschitz, 107
Bieberbach-Soul Theorem, 142
bilipschitz, 107
Boileau, 155
Bonahon, 155
Borromean rings, 35
boundary of orbifold, 23
branched cover, 18
Busemann function, 144
- characteristic submanifold, 48
Cheeger, 155
collapsing case, 135
Collapsing Theorem, 135
complete, 7
- complex length, 95
cone, 24
cone neighbourhood, 60
cone-manifold, 53
cone: Cone $_K(S; R)$, 59
conjugate point, 65
Conway sphere, 19
corner, 24
cusp, 94
cut locus, 65
- Def(M), 94
deformations count, 98
Dehn filling, 13, 100
Dehn Surgery, 13, 17
developing map, 9, 75
dihedral edge, 140
dihedral vertex, 140
Dirichlet domain , 66
disassembly, 149
doubling trick, 122
Dunbar, 155
- ends, 94
ends: cone manifold, 131
ends: orbifold, 130
eps ϵ -approximation, 108
eps ϵ -collapse, 135
eps ϵ -count, 113
equivalence of (G, X) structures, 92
equivariant, 21

essential, 46
 Euclidean cone-manifold, 53
 Euclidean Decomposition Theorem, 120
 Euclidean orbifold, 30
 Euclidean turnover, 79
 Euler number, 46
 exceptional fibre, 39
 exceptional surgery, 101
 exponential map, 64
 figure eight knot, 35
 finite volume hyperbolic, 14
 flat connection, 93
 flowchart of collapsing case, 150
 folded ball, 40
 folded thick X , 45
 folded thick ..., 144
 football, 25, 54
 Fukaya, 155
 G,X orbifold, 30
 G,X structure, 9
 Gauss-Bonnet, 6, 31, 71
 generic fibre, 37
 geodesic, 61
 geometric decomposition, 5
 geometric structure, 5, 8
 geometric structure on an orbifold, 50
 Geometrization Conjecture, 5
 global cone, 66
 good orbifold, 28
 graph manifold, 49
 graph orbifold, 49
 Gromov, 155
 Gromov-Hausdorff distance, 107
 Gromov-Hausdorff topology, 110
 Haken manifold, 11
 Hamilton's Theorem, 138

Hausdorff distance, 107
 Heegaard splitting, 15, 16
 holonomy, 10, 75
 homogeneous, 7
 Hopf-Rinow, 62
 horizontal singular locus, 42
 hyper-elliptic, 16
 hyperbolic cone-manifold, 53
 Hyperbolic Dehn Surgery Theorem, 14
 hyperbolic orbifold, 30
 hyperbolic structure, 6
 Hyperbolization Conjecture, 13
 incomplete structures, 10
 incompressible, 46
 infinite pillowcase, 82
 injectivity radius, 115
 irreducible, 46
 irreducible representation, 98
 isotopy, 47
 isotropy group, 22
 JSJ decomposition, 48
 Kirby Problem List, 155
 Kojima, 155
 latitude hypothesis, 147
 lens space, 16
 Lipschitz map, 107
 local group, 22
 Local Margulis Theorem, 144
 local model (of orbifold), 21
 local-orientation double cover, 28
 locally orientable, 22
 McCullough, 155
 Meeks, 154
 meridian, 44
 Miller, 155

- mirror points, 23
Montesinos knot, 20
non-compact Euclidean, 142

Ohshika, 154
open cone, 59
orbifold atoroidal, 46
orbifold boundary, 23
orbifold bundle, 37
orbifold covering, 27
orbifold disc, 46
orbifold Euler characteristic, 29
orbifold fundamental group, 28
orbifold geometric structure, 50
orbifold incompressible, 46
orbifold isotopy, 47
orbifold map, 21
Orbifold Seifert fibred Space (OSFS), 39

Orbifold theorem: proof, 119
Orbifold theorem: statement, 50
orbifold: definition of, 21
orientable orbifold, 22
Orthogonalization Conjecture, 13

path metric, 61
pillowcase, 22
pillowcase, infinite, 82
Poincaré Conjecture, 13
Poincaré's polyhedron theorem, 33
Porti, 155
prime decomposition, 5
prime knot, 19
proper metric space, 112

rational knot, 17
reflector points, 23
regular set, 28
rescale the metric, 156

satellite knot, 12
Schläfli formula: cone-manifolds, 72
Schläfli formula: polyhedra, 71
Scott, 154
segment, 64
Seifert fibre space (SFS), 39
Seifert fibred orbifold, 39
Siebenmann, 155
silvered points, 23
singular fibred folded ball, 40
singular fibred solid torus, 40
singular folded ball, 40
singular locus, 22
smear, 112
Smith Conjecture, 15
Soma, 154
soul, 144
spherical cone-manifold, 53
spherical orbifold, 30
spherical structure, 6
spindle, 25
standard cone neighbourhood, 59, 60
suborbifold, 46
suspension: $\text{Susp}_K(S)$, 59
Symmetry Theorem, 15

tangent cone, 61
teardrop, 25
thick X , 45
thick pillowcase, 144
thick torus, 144
thick turnover, 144
thin part, 141
Thurston's Theorems A and B, 153
Tollefson, 154
torus decomposition, 5
torus knot, 11
turnover, 32, 54

two bridge, 17

underlying space, 22

uniformly totally bounded, 113

universal orbifold cover, 28

vertical singular locus, 42

very good, 28

Voronoi region, 68

Zhou, 155