

Index

- G -atlas, 132
 - flat -, 146
 - maximal -, 132
- $R[\Gamma]$ -
 - complex, 35
 - map, 1
 - map of normed modules, 4
 - module, 1
 - augmented normed - complex, 42
 - dual normed - module, 27
 - normed - complex, 41
 - normed - module, 3
- Γ -
 - complex, 35
 - homotopy, 35
 - homotopy for normed complexes, 41
 - invariants, 1
 - augmented - complex, 35
 - augmented normed - complex, 42
- k -tuple
 - positively oriented -, 119
 - weakly positively oriented -, 119
- 2-cocycle
 - homogeneous -, 16
- affine
 - manifold, 178
 - space-form, 178
 - complete - manifold, 178
 - special - manifold, 180
- alternating
 - group cochain, 48
 - singular cochain, 59
- amenable
 - action, 46
 - set, 46
 - group, 23
 - elementary - group, 26
- bar resolution, 6
- central extension, 9
- chain
 - ℓ^1 -, 66
 - singular -, 3
- circle bundle, 131
- class
 - fundamental -, 77
- cochain
 - alternating -, 48
 - alternating singular -, 59
 - bounded continuous -, 88
 - continuous -, 87
 - singular -, 3
 - singular bounded -, 53
 - special -, 61
- coclass
 - fundamental -, 82
- cohomology
 - module of a group, 2
 - bounded - module, 4
 - bounded singular - module, 53
 - exact bounded -, 5
 - relative bounded -, 60
 - relative singular -, 60
 - singular -, 3
- commensurable
 - Riemannian manifolds, 79
- comparison map, 5, 53, 70
- complex, 35
 - $R[\Gamma]$ -, 35
 - Banach chain -, 65
 - homogeneous -, 1
 - inhomogeneous -, 6
 - normed $R[\Gamma]$ -, 41
 - normed chain -, 65
 - normed dual -, 65
- contracting homotopy, 35, 42
- defect, 12
- Eilenberg-MacLane space, 3
- Euler class
 - of $\text{Homeo}^+(S^1)$, 113
 - of a representation, 115
 - of a sphere bundle, 136
 - of a vector bundle, 138
 - bounded -, 173

- bounded - of $\text{Homeo}^+(S^1)$, 115
- bounded - of a flat circle bundle, 151
- bounded real - of $\text{Homeo}^+(S^1)$, 126
- canonical representative of the bounded real -, 127
- real - of $\text{Homeo}^+(S^1)$, 126
- real - of a sphere bundle, 151
- real bounded - of a flat circle bundle, 151
- Euler cochain, 171
- Euler number
 - of a sphere bundle, 137
 - of representations of punctured surface groups, 155
- extension
 - central -, 9
 - equivalent -, 9
- foliation
 - transverse -, 147
- fundamental
 - class, 77
 - coclass, 82
- general position, 170
- good lift, 120
- group
 - amenable -, 23
 - elementary amenable -, 26
- Haar measure, 93
- holonomy
 - of a flat bundle, 147
 - representation, 163
- homogeneous
 - 2-cocycle, 16
 - quasimorphism, 13
- homogeneous complex, 1
- homology
 - ℓ^1 -, 66
 - relative singular -, 60
 - singular -, 3
- homotopy
 - Γ -, 35
 - contracting -, 35, 42
- inhomogeneous complex, 6
- injective
 - relatively -, 33, 41
 - strongly -, 33, 41
- Kronecker product, 66
- manifold
 - affine -, 178
 - complete affine -, 178
 - special affine -, 180
 - tangentially flat -, 178
- map
 - chain - between Γ -complexes, 35
 - change of coefficients -, 2
 - comparison -, 5, 53, 70
 - increasing of degree one -, 119
- mean, 23
 - bi-invariant -, 24
 - invariant -, 23
 - left-invariant -, 23
- Milnor-Wood inequalities, 153
 - for punctured surfaces, 162
- minimal representation, 121
- minimal volume, 84
- module
 - $R[\Gamma]$ -, 1
 - dual normed $R[\Gamma]$ -, 27
- norm
 - ℓ^1 -, 66, 67
 - ℓ^∞ -, 4
- projective bundle, 138
- quasimorphism, 12
 - bushy -, 21
 - homogeneous -, 13
 - split -, 15
- relatively injective, 33, 41
- representation
 - geometric -, 163
 - holonomy -, 163
 - maximal -, 162
 - minimal -, 121
 - semi-conjugate -, 121
- resolution, 35
 - of a normed $R[\Gamma]$ -module, 42
 - bar -, 6
 - relatively injective -, 35, 42
 - standard -, 36
 - strong -, 35, 42
- rotation number, 116
- semi-conjugate
 - representations, 121
- seminorm
 - ℓ^1 -, 67
 - ℓ^∞ -, 4
 - canonical -, 4
- simplex
 - smooth -, 95
 - straight -, 92, 96
- simplicial volume, 77
- stable integral -, 84
- integral -, 84
- integral foliated -, 85
- Lipschitz -, 86
- space
 - Eilenberg-MacLane -, 3
 - continuously uniquely geodesic -, 91
- sphere G -bundle, 132
 - flat -, 145

- isomorphic -, 132, 146
- sphere bundle, 131
 - associated with a vector bundle, 133
 - with structure group, 131
- flat - with structure group G , 145
- flat linear -, 146
- flat smooth -, 146
- flat topological -, 146
- isomorphic -, 131
- linear -, 132
- linearly isomorphic -, 132
- smooth -, 132
- smoothly isomorphic -, 132
- topological -, 132
- stable commutator length, 20
- straight simplex, 92, 96
- straightening, 92
- strongly injective, 33, 41
- theorem
 - Banach-Alaouglu -, 25
 - Markov-Kakutani -, 25
- uniform boundary condition, 68
- vector bundle
 - flat, 146