

Index

A

- Activity scope
 - application, 27, 29
 - development, 27, 29
 - exploration, 27, 28
- Activity-Knowledge-Guidance Model of a Discipline (AKG) model
 - activity scope, 27, 33, 43, 49, 55, 75, 83
 - guidance framework, 27, 31, 33, 43, 49, 55, 75, 83, 84, 90
 - knowledge base, 27, 43, 49, 55, 74–75, 83, 84
- Ashby, W.R., 42, 126, 128

B

- Bogdanov, A.A.
 - GST, 4, 8, 79
- Boulding
 - complexity, 12
 - disciplines, 4, 12, 45, 80, 83, 98
 - Skeleton of Science*, 80
 - systems hierarchy, 12, 81, 98
 - systems models, 109
- Boyle's Law, 108, 114–115
- Bunge, M.
 - systems philosophy, 64, 73

C

- Complexity
 - complexity, kinds of, 54, 94, 95, 126, 127
 - degrees of complexity, 127

D

- de Condillac, E.B.
 - systems science, 4
- Disciplinarity
 - cross-disciplinarity, 50
 - inter-disciplinarity, 50
 - mono-disciplinarity, 50
 - transdisciplinarity, 15, 49–50, 52
 - transdiscipline, 32, 33, 36, 38, 43, 45–57, 66, 83, 109
- Discipline
 - AKG model, 27, 28, 31, 33, 49, 55, 74, 83, 84
 - disciplinary field, 6, 8, 9, 12, 15, 25–44, 46, 48, 83

E

- Emergence, emergent, 1, 3, 8, 71, 92, 96, 106, 108, 110, 118–128

G

- General principles
 - general principles in science, 16
 - general scientific systems principles (GSSPs), 6, 16, 44, 52, 105–106, 108, 110–112, 117–129
 - general systems concepts, 111
 - general systems principles, 3, 4, 12, 15, 36, 39, 41, 70, 73–75, 80, 102, 110, 116–117

- General systems
 methodology, 38, 42
 models, 1, 4, 13, 42, 54, 121, 129
 principles, 3, 4, 12, 15, 36, 39, 41, 70, 73,
 75, 80, 110, 116–117, 120
 synergy between GST* and GSW, 74–75
 systemology, 2, 34, 48, 64, 83, 110
 transdisciplinarity (GSTD), 13–15, 25, 41,
 47, 52–57, 75, 83, 111, 129
 worldview (GSW), 13, 15, 39, 42, 56,
 65–75, 112
- General Systems Methodology (GSM), 14, 72,
 73
 transdisciplinarity, 10, 47
- General Systems Theory (GST)
 Bogdanov, 4, 79
 GST, 2, 7, 12, 13, 15, 26, 36, 42, 43, 45,
 46, 64, 75, 79, 83
 GST*, 3–5, 7, 10, 12, 13, 15, 36, 39–43,
 46, 49, 56, 63, 79, 80, 82, 84, 97–99,
 102, 110, 117, 129
 models, 97–99
 synergy with GSW*, 70, 71, 74–75
 utility, 49, 64–65, 69, 80
 value, 7, 11, 15, 43, 47, 49, 56, 57, 63–75,
 102, 129
 von Bertalanffy, 2, 4, 7, 12, 36, 39, 42, 43,
 45, 46, 64, 70, 79
- General systems transdisciplinarity (GSTD),
 13–15, 25, 41, 47, 52–57, 75, 83, 111,
 129
 utility, 49
- General Systems Worldview (GSW), 13, 15,
 39, 42, 56, 65–75, 112
 synergy with GST*, 70, 71, 74–75
- General theories, 3–5, 10–13, 15, 26, 30, 32,
 33, 36, 38, 41–43, 45, 46, 55, 64, 69,
 70, 81–86, 91–99, 102, 110
- Guidance framework
 domain view, 30, 42
 lifeview, 31
 terminology, 31, 42
 worldview, 30, 42
- H**
- Heuristics, heuristic
 heuristic principles, 11, 80, 106–108, 110,
 111, 113, 124
- Hierarchy
 complexity hierarchy, 108, 109, 118, 126,
 127
 levels hierarchy, 108, 126, 127
 scale hierarchy, 127
 systems hierarchy, 118, 124
- I**
- Isomorphies, isomorphic, isomorphisms
 Troncale, 5, 12, 66, 70, 73, 80, 110
 von Bertalanffy, 4, 7, 12, 56, 70,
 73, 80
- K**
- Knowledge base
 data, 26, 29
 methodologies, 26, 30
 theories, 26, 30
- L**
- Laszlo, E.
 systems philosophy, 66, 71, 73
- M**
- Metaphysics
 metaphysics of science, 112, 116, 120, 121
 philosophy of science, 68
- N**
- Newton, 12, 64, 93, 113, 115, 125
- O**
- Ontology
 critical realism, 56
 perspectivism, 39, 65
 scientific realism, 38, 39, 65, 67, 68
- P**
- Periodic table
 of systems, 12, 80, 81, 98
- Philosophy of worldviews
 axiology, 31, 42, 67, 68
 cosmology, 31, 67, 68, 125
 epistemology, 31, 42, 67, 68, 125
 metaphysics, 31, 42, 67, 68
 ontology, 31, 42, 67, 68
 praxeology, 31, 67, 68
 theoretical virtues, 115, 125

Principles

- complexity dominance, principle of, 126–128
 - conservation of energy, principle of, 52, 107, 121–124
 - conservation of properties, principle of, 123–126
 - definition, 106–108
 - emergence, emergent, 3
 - forms of, 107, 111
 - general principles, 16, 52, 70, 81, 82, 105, 106, 108, 110, 112–115, 120, 123
 - heuristic principles, 11, 80, 95, 106, 107, 110, 111, 113, 124
 - Kepler, 115
 - scientific principles, 66, 105–129
 - scientific systems principles (SSPs), 111, 116
 - specialized principles, 36–37, 86, 111
 - submergence, 122–126
 - universal interdependence, principle of, 124, 125
- Principles-Laws-Theories Model of Science (PLT) model, 112–114, 116, 117

S

- Simon, H.
- hierarchy, 2, 12, 42, 80
 - near-decomposable systems, 2, 12, 42, 80
- Society for General Systems Research (SGSR)
- Boulding, 4
 - history, 4, 63
- Submergence, 122–126
- System
- definition, 42, 118
 - philosophy, 3, 9, 10, 35, 64, 71, 73, 74, 116, 117
 - practice, 3, 10, 35, 37, 106, 117
 - principles, 12, 106, 108–112, 116, 117, 124–126, 128
 - worldview, 117
- Systemics
- complexity, 2, 3, 37, 119, 126
 - hierarchy theory, 3, 37, 70
- Systemology
- general systemology, 2, 34, 48, 64, 129
 - naturalistic tradition, 39
 - principles, 2, 11, 36, 105
 - systems philosophy, 3, 10, 35, 65, 74
 - systems principles, 7, 105–129
 - traditions and schools, 33–35, 38–40, 43
 - typology, 40–43

- von Bertalanffy, 4, 5, 35, 36, 38, 39, 41, 43, 79, 80, 108
- Systems engineering, 3, 5, 6, 8, 10, 14, 16, 35, 37, 38, 81, 95, 99, 105, 106, 125
- Systems philosophy
- Bogdanov, 9
 - Bunge, 35, 64, 65, 73
 - GST, 3, 7, 10, 64–66, 73, 74
 - Laszlo, 8, 66, 71, 73
 - von Bertalanffy, 7
- Systems principles
- conservation of energy principle, 52, 121–124
 - conservation of properties principle, 123–125
 - emergence, emergent, 71, 110, 119, 121–128
 - near-decomposable systems, 2
 - scientific systems principles (SSPs), 6, 42, 44, 54, 105–106, 108, 110, 111, 116–129
 - submergence, 123, 126
 - traditions and schools, 38–39
 - typology, 98
 - von Bertalanffy, 108
- Systems Science
- de Condillac, Étienne Bonnot, 4
 - general systemology, 3, 118–120, 129
 - hybrid systems science, 3
 - PLT, 112–114, 116, 117
 - scientific systems principles (SSPs), 111, 116
 - specialized systems science, 5
 - systemics, 5, 37
 - systems principles, 80, 110

T

- Transdisciplinarity, 32
- aims, 48
 - character, 48
 - definition, 47–50
 - GSTD, 13–15, 25, 41, 45, 47, 52–57, 75, 83, 111, 129
 - kinds of (*see Disciplinarity*)
 - meta-science, 46
 - range, 15, 38, 49, 52–54
 - scope, 15, 25, 38, 47, 54–56
 - utility, 49, 99
 - varieties of, 47, 49–50
 - von Bertalanffy, 46, 56

Translational science
translational systems science, 15, 54, 55,
129

Troncale, L.R.
isomorphies, 5, 12, 66, 73, 80
linkage propositions, 5, 66
systems Processes Theory (SPT), 42

V

von Bertalanffy, L.
GST, 2, 4, 7, 12, 36, 38, 39, 43, 45, 46, 64,
70, 79

isomorphies, 4, 7, 12, 56, 70,
73, 80
systems philosophy, 7, 65

W

Worldview
components of a worldview, 67, 71, 73, 90,
112
GSW, 13–15, 39, 42, 56, 65–75, 112
scientific worldview, 7, 13, 34,
43, 66