

INDEX

A

Ash, 213–216, 230, 242, 245–248, 250–251, 261, 264
Asymmetric channel, 213, 242, 245–246
Automotive, 47–49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99

C

Cake, 223, 225–229, 231, 235, 237–239, 242, 245, 249
Catalyst, 213–214, 216, 219–221, 229, 234–235, 238–239, 241, 267
Catalyst modeling, 104, 110–111, 137, 198
CeO₂–ZrO₂ solid solution, 14, 17
CO oxidation, 112, 123, 133–134, 155
Combined exhaust gas aftertreatment systems, 103, 109
Computer simulation, 48–50, 97

D

Deep bed filtration, 228, 230
Deposit compaction, 213, 226–228
Deposit microstructure, 213, 219, 223
Diesel oxidation catalyst, 103–104, 108, 130–131, 199, 205
Diesel particulate filter, 49, 77, 93, 99

E

Effective conductivity, 213, 254–258
Entrainment, 213, 242, 246–248, 250
ExACT, 109, 123, 144, 151, 198, 201, 205
Exhaust aftertreatment, 48–49
Exhaust gas aftertreatment systems modeling, 109

F

Fast SCR, 164–165, 176, 178–179, 181–185, 195, 198
Filter, 213–224, 226–235, 237–240, 242–244, 246, 250–251, 254, 256, 258–259, 261–267
Flow in porous media, 213, 217, 219, 228

H

Hydrocarbons (HC) adsorption, 104, 113, 131–134, 136, 140, 142, 201
Hydrocarbons (HC) oxidation, 119, 130, 133–135, 139, 142, 151, 153–154

I

Inertial loss, 213, 242, 244
Isotopic exchange reaction, 15–17

K

Kinetic modeling, 128, 142
Kinetics, 213, 234, 239, 242, 250

L

Lattice Boltzmann, 220, 223
Lean exhaust gas aftertreatment, 103

M

Modelling, 47–50, 53, 59–60, 63, 65–67, 76, 78, 84, 88–90, 93–94, 97–98
Monolith, 47–50, 56–58, 61–62, 70, 90, 94, 98, 99
Monolith modeling, 111, 134
Multichannel phenomena, 213, 257

N

NO_x reduction, 108, 138, 142–143, 147–151, 155, 157, 201
NO_x storage, 103–104, 108, 113, 137, 142–156, 159–163, 202, 205
NO_x storage catalyst, 149, 154–155
NO_x storage reduction catalyst, 2, 8
NO_x trap, 47–48, 53, 77, 88–89, 97, 99
NO₂ turnover, 213, 238–239, 241

O

Optimization, 107–108, 128, 153, 201
Oxidation catalyst, 47–48, 76, 78, 86, 97, 99
Oxidation, 213, 234–235, 237–241, 261, 265–267
Oxygen mobility, 1–2, 15–16, 42
Oxygen storage and release, 1–2, 8, 16, 42

P

Packing density, 223
Permeability, 217–218, 221, 223–224, 237, 265–266
Pressure drop, 215, 218, 226–229, 232, 235, 237, 261–264
PtRh/Ba/CeO₂/Al₂O₃ catalyst, 146, 149, 154

S

SCR, 47, 61, 77–78, 83–86, 97, 99
Sintering of PGM, 1, 18, 43

Soot, 213, 215–216, 223, 225–228, 230–231, 234–250, 258–263, 265–267
Steam reforming, 132, 150–151, 153–155, 202
Sulfur poisoning, 2, 33, 35, 39, 43, 44

T

Three way catalyst, 3–5, 24, 48, 99
Transient catalytic kinetics, 124–126, 129, 132, 134, 149–151, 165–166, 172, 174–179, 181–183, 189–191, 198
Two layer model, 234, 236, 238, 239, 270

U

Unit cell, 229, 257
Urea SCR, 124

V

V₂O₅-WO₃/TiO₂ catalysts, 165

W

Wall heat transfer, 213, 242, 250
Water gas shift, 132, 148, 150–151, 153–155, 202

X

XAFS, 13
XANES, 21–24

Z

Zeolite catalysts, 138