Subject Index

A

Absorbed dose, 456
levels, 433
Accelerator transmutation of waste, 782
ACRR reactor, 423
Activation, 559, 792
calculation, 690
detector, 55, 618, 804
foils, 578, 720
measurements, 155, 323, 720, 751
method, 711
neutron resonance, 187
Advanced Neutron Source, 568
Alamine, 423
ALICE, 804
Aluminum, 568
alloys, 233
aluminum/sodium reaction, 720
detector, 800
Amino acid, 423
Annealing, 9, 19, 38, 447, 515, 546
Arrhenius Equivalent Temperature, 195
Associated Benchmark Data Base, 333
ASTM Standards E 706: 9, 19
Axial distribution, 132

B

Backscattering effect, 392
Barium silicate, 456
Beam tubes, 140
Beltline plate materials, 628
Benchmark, concrete, 392
Benchmark data base, 333
Benchmark experiment, 358
Benchmark method, 401, 559
Benchmark neutron spectra, 641
Benchmark, Pool Critical Assembly, 376
Benchmarks, neutron leakage, 368
Beryllium, 187
irradiations, 546
Boiling water reactor, simplified, 464
Bonner spheres, 290, 300
Boron, 792
concentrations, 167
BR2 reactor, 546, 608
Bubble detectors, 225
BUGLE-80, 650
BUGLE-95, 660
B&W Nuclear Technologies, 744
B&WOG Cavity Dosimetry Program, 358, 447

C

Calcium sulfate, 456
Calibration, reference, 401
CANDU reactors, 441
Cavity dosimetry, 55, 358
Cavity, reactor, 447
CEA Nuclear Protection and Safety Institute, 411
Chromatography, 203
Cobalt, 177, 500, 727, 792
Collision, 187
Concrete benchmark experiment, 392
Copper, 500
Core loading, 147
Counter, position sensitive, 263
Covariance matrix, 310
Critical assembly, 456
Criticality accidents, 411
Criticality calculations, 368
Cross section adjustment, 348
Cross section, cobalt, 727
Cross section, differential scattering, 737
Cross section evaluation, 694
Cross section, gadolinium, 744
Cross section, gold, 727
Cross section library
   BUGLE-80, 650
   BUGLE-93, 660
   DOSCROS84, 680
   ENDF/B-VI, 348, 660, 680, 704, 804
   ENDF-VI, 694
   GLUCS, 680
   IRDF-85, 641, 670
   IRDF-90, 680, 694
   JENDL, 187, 670, 720
   JENDL-3, 670, 680
   SAILOR, 650
   VITAMIN-B6, 660
   VITAMIN-C, 392
Cross section standard, 704
Cross section, thermal neutron, 711

D
Damage, 140, 533
Damage correlation, 490
Damage intercomparison, 509
Damage modeling, 9, 19
Damage monitors, 9, 19
Damage predictions, 628
Damage rates, 523
Decommissioning, 690
DEMO fusion reactor, 773
Detectors
   activation, 55, 618
   NE213 scintillation, 280
   proton recoil, 300
   rhodium, 245
   self-powered neutron, 255
   silver, 255
Differential elastic scattering measurements, 737
Differential operator method, 348
Diffusivity, radiation enhanced, 533
Diodes, monitoring, 509
Discrete ordinates, 376
Displacement damage, 578
Displacement production, 782
DOSCROS84, 680
Dose mapping, 441
Dosimetry methodology, 9, 19
Dosimetry System 86, 751
Drop detectors, superheated, 225
DS86, 751
Ductile fracture, 533
Dummy assemblies, 147
Dynamic compensation, 255

E
ELECTRABEL, 323
Electrical conductivity, 500
Electron linear accelerators, 618
Electron paramagnetic resonance, 423
Electron spin resonance, 423
ELXSIR library, 333
Embrittlement, 3, 9, 19, 533
   boron effects on, 167
   data base, 515
   ductile fracture process, 533
   Nuclear Regulatory Commission research, 3
   transport data, 140
   VVER reactors, 464
   weld, 38
ENDF/B-VI, 348, 660, 680, 704, 804
ENDF-VI, 694
Energy dependent cross section, 670
Energy Selective Neutron Irradiation Test Facility, 727
Euratom Working Group on Reactor Dosimetry, 233

F
Fast Flux Test Facility/Materials Open Test Assembly, 500, 523, 773
Filters, 310
Fission fluxes, equivalent, 323
Fission counters, 588
Fluence monitoring, 29, 38, 55
   benchmark experiment, 358
   Bonner spheres, 290
   calculation, 114, 744
   damage, 472
   diodes, 509
   energy dependence, 704
   estimates, 45, 628
   factors affecting, 490
   helium accumulation, 761
LEPRICON, 65, 75
light water reactor, 104
magnetic response, 215
mapping, 804
PCDC calculations, 155
rate measurements, 233, 401, 515
scraping samples for, 147
short decay times, 177
test reactor, 598
three dimensional test, 343, 358, 376
uncertainties, 85, 94
Flux, 203, 343, 559, 690
beginning-of-cycle, 140
monitors, 233
neutron distribution, 588
neutron, estimations, 205
neutron, spectrum, 447
neutron, thermal component, 650
neutron transient, 245
research reactor, 568, 588
three-dimensional synthesized, 358
Foil, monitor, 177
Foil technique, 187
Ford Nuclear Reactor, 628
Framatome reactor, 65
Fuel monitoring, spent, 225
Fuel rod power, 608

G
Gadolinium, 744
Gamma calculations, two dimensional, 608
Gamma detector, 447
Gamma induced damage, 578
Gamma neutron environments, 423
Gamma radiation, 433
Gamma rays, 441, 456, 751
Gamma transport analyses, 114, 650
Gas cooled reactor, 761
GLUCS, 680
GNASH, 727
Gold, 711, 727

H
Hardening, 533
Heavy water reactor, 568
Helium
formation, 546, 782
measurements, 167, 310, 761
HETC computer program, 559, 800
High flux test reactor, 140
High resolution neutron transmission, 737
Hiroshima, 751
Hydrogen determination, 271

I
Inconel 718, 782
Indium metal target, 187
Integrating Thermal Monitor, 195
Integrity, vessel, 3
International Atomic Energy Agency, 690
Coordinated Research Programme, 464
International Reactor Dosimetry File, 641
Ion chambers, 588
IRDF-85, 641, 670
IRDF-90, 680, 694
Iron, 310, 744
Iron displacements, 384
Iron fluence detectors, 147
Iron inelastic scattering, 392
Iron wires, 215
Isomer ratio, 177
Isotope reactor, high flux, 140

J
Japanese Evaluated Nuclear Data Library Dosimetry File, 187, 670, 720
JENDL, 187, 670, 720
JENDL-3, 670, 680
Japanese Nuclear Data Committee, 670
JENDL, 187, 670, 720
JENDL-3, 670, 680
Kerr soft-tissue kerma factors, 300
Kinki University Reactor, 711
Koebert reactor, South Africa, 155
KORPUS facility, 480
KUCA, 456
Kyoto University Critical Assembly, 456
Kyoto University Reactor, 711

LAHET, 773, 782
LAMPF, 773, 804
LANSCE, 704
Least squares formalism, 75, 348
LEPRICON, 75
adjustment, 333
methodology, 65
Light water reactor, 104, 123
data base, 533
standards, 9, 19
surveillance, 392
Light water spectrum, 472
Linear differential system, 245
Liquid Scintillation Counter, 45
Lithium fluoride high fluence rate
gamma detector, 447
Lithium targets, 761
Loading
core, 147
MOX, 132
Long counter, 263
Los Alamos Neutron Scattering Center, 704
Los Alamos Spallation Radiation Effects Facility, 773
Lovissa reactors (See also
VVER-440), 45

Magnesium silicate, 456
Magnetic properties, 215
Magnox reactors, 384
MAPLE-X10 reactor, 588
Mapping, gamma ray dose, 441
Mass spectrometry, 167, 203
Materials development, 773
Materials Dosimetry Reference Facility, 401
Matrix damage, cascade induced, 533
Maxwellian distribution field, 711
MCBEND, 123, 323, 384
MCNP transport code, 368, 376, 523, 588, 773, 782
Mechanical property changes, 490
Metallurgy, 9, 19
Metal target, 187
MHTGR, 761
Modeling
cobalt, 177
damage, 9, 19
geometrical, 608
measurement apparatus, 368
microstructural, 533
nonlinear regression, 694
reactor sides, 384
sensitivity, 114
theoretical model method, 727
transport analysis, 744
Monitor foil, 177
Monitoring, fluence, 29, 38, 55
benchmark experiment, 358
Bonner spheres, 290
calculation, 114, 744
damage, 472
diodes, 509
energy dependence, 704
estimates, 45, 628
factors affecting, 490
helium accumulation, 761
LEPRICON, 65, 75
light water reactor, 104
magnetic response, 215
mapping, 804
PCDC calculations, 155
rate measurements, 233, 401, 515
scraping samples for, 147
short decay times, 177
test reactor, 598
three dimensional test, 343, 358, 376
uncertainties, 85, 94
Monte Carlo, 323, 348, 368, 376, 773
indium natural target, 187
LAHET, 773, 782
MCBEND, 123, 323, 384
MCNP, 368, 376, 523, 588, 773, 782
Saint Laurent B1 MOX, 132
simulations, 263, 618
MOS dosimeter, 441
MTR, 598, 608
Multiple scattering, 187

N
Nagasaki, 751
National Institute of Standards and Technology, 447, 509
Neptunium, 704, 711
NE213, 300
scintillation detectors, 280
Neutron detection, 225
rhodium detectors, 245
silver detectors, 255
Neutron energy, 263
Neutron field spectrometry, 290
Neutron flux, 140, 203, 690
estimations, 205
research reactor, 568, 588
spectrum, 447
transient, 245
Neutron gamma cross sections, 650
Neutron gamma environments, 423
Neutron leakage benchmarks, 368
Neutron photon transport, 523
Neutron resonance activation, 187
Neutron spectrum effect, 472, 641
Neutron spectrum technique, notched, 271
Neutron transport, 628, 650
calculation, 65, 114, 147, 690
validity, 384
code, 358, 376
ex-core, 333
Neutron Unfolding Package Code (NEUPAC), 720
Nickel, 500
Nickel-cobalt reaction, 177
Nickel wires, 215
Niobium, 45, 694, 203
fluence detectors, 147
Nitrogen, 737
Nonlinear regression model, 694
Nuclear Data Guide for Reactor Neutron Metrology, 641
Nuclear Regulatory Commission, 3

O
Oak Ridge Electron Linear Accelerator, 737
Obrigheim power plant, Germany, 147
ONEDANT, 588
Optical absorbance gamma dosimeters, 447
OSIRIS reactor, 255, 472

P
Pade-approximation, 694
Paul Scherrer Institute, 800
PCDC dosimetry cross sections, 155
Peele's puzzle, 75
Permeability, 215
Photoneutrons, 618
Photon flux distributions, 588
PIREX, 800
PKA spectrum, 782
Plate materials, 628
Pool Critical Assembly Benchmark, 376
Power distribution, 45
Power-Reactor Embrittlement
Database, 94, 515
Precipitation, 533
Pressurized water reactor, 65
Proton accelerator, 782
Proton fluence, 800
Proton Irradiation Experiment, 800
Proton recoil, 300
Pulsed sphere experiments, 348
Pulse Radiation Facility, 300

S
SAILOR cross section library, 650
SANDII, 680
Saturation activation rates, 123
Saturation activities, 187
Scattering detectors, 737
Shielding, 660
SILENE, 411
Silicon bipolar transistors, 578
SILOE reactor, 245, 472
SINCROS-II, 727
SINQ, 559
SNLRML, 680
Solid State Track Recorders, 195
Spallation neutrons, 782, 800
Spallation neutron source, 559, 804
Spectral calculation, 578, 628, 641
Spectrometry, 225, 280
Bonner spheres, 290, 300
energy dispersive X-ray, 500
mass, 167, 203
Spectroscopy, 423
Spectrum adjustment, 680, 720
Spectrum determination, 680
Spectrum field, 711
Spectrum, fission, 670
Spectrum, neutron, effect, 472, 641
Spectrum, neutron, notched
technique, notched, 271
SPR-III reactor, 423
Standards, 9, 19, 660
European, 464
National Institute of Standards
and Technology, 447, 509
neutron field, 670
reference materials, 233
STARFIRE reactor, 500
Steel, 203
boron determination in, 167
cylinder, 401
hydrogen determination in,
271
pressure circuits, 384
Strontium silicate, 456
Sulfur, 177
Superheated drop detectors, 225

R
Radiation Metrology Laboratory, 433, 680
Radiotherapy rooms, 618
Ramp, 245
Ramp program, 255
RBT-6 reactor, 480
Reaction rate, 187
Reactor Information System
data base, 690
Reactor shielding, 660
Reference materials, 233
Materials Dosimetry Reference
Facility, 401
Reference neutron spectrum, 411
Regulations
draft, neutron fluence, 104
research impact on, 3
Remanence, 215
Resonance, 704
integral, 711
parameters, 737
Reusability, thermoluminescence
dosimeters, 433
Rhodium, 233
self powered neutron
detectors, 245
R-matrix analysis, 737
Surveillance, 45, 104, 132, 464, 515
    aging, 38
    capsule dosimetry, 94
    capsules, 358
    coupon materials, 523
    damage, 140
    ex-vessel, 392
    Fast Flux Test Facility program, 523
    hydrogen, 271
    Koeberg, 155
    MCBEND, 123, 323, 384
    packets, Charpy, 215
    program optimization, 464
    standards, 9, 19
    VENUS, 323, 333
    Yankee Atomic Electric Company program, 114

T
    Temperature effects, 509
    Temperature monitoring, 195
    Test Reactor Embrittlement Data Base, 515
    Thermal aging, 195
    Thermal fluence rate, 598
    Thermoluminescence, 423, 433, 792
detector, 456, 578
    THREEDANT, 376
    3DDT, 588
    Three dimensional test, 343, 358, 376
    Threshold activation rates, 323
    Threshold reaction, 720
    TIHANGE-2 Surveillance System, 65
    Titanium, 233
    Tokamak, 792
    TORE-SUPRA, 792
    Track recorders, 195
    Transmutation, 500, 782, 800
    Transport analysis model, 744
    Transport calculations, 140
    MCNP code, 368
    neutron, 55
    Trend curves, 94, 533
    TRIPOLI, 132
    Tritium formation, 546, 761
    retention, 761
    Tungsten, 773
    Two-dimensional neutron and gamma calculations, 608

U
    Ultra-high flux beam, 568
    Uncertainties, 290
    Uncertainty assessment, 85, 94, 490
    matrices, evaluation of, 75
    Uncertainty propagation, 310
    Upper shelf energy, 533
    Uranium, 744
    fission spectrum, 670, 720

V
    Vanadium, 233
    VENUS, 323, 333
    VITAMIN-B6, 660
    VITAMIN-C, 392
    Voids, 533
    VVER reactor, 55, 464
    VVER-440 reactor, 29, 38, 45
    VVER-1000, 343

W
    Water loop, pressurized, 255
    Water moderators, spherical, 368
    Welds, 38
    WIMS-AECL, 588
    WWER vessel materials, 480

X
    X-ray fluorescence, total reflection, 800

Y
    Yankee Atomic Electric Company, 114, 628
    Yankee Rowe reactor, 464

Z
    Zinc, 500