

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
 Alanine, 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
 FLXSIR 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

K

- 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

L

- 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
- Loviisa reactors (See also VVER-440), 45

M

- 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 fluence monitoring, 29,
38, 55, 650, 800
benchmark experiment, 358
Bonner spheres, 290
calculation, 114, 744
damage, 472
energy dependence, 704
estimates, 45, 628
factors affecting, 490
helium accumulation, 761
LEPRICON, 65, 75
light water reactor, 104
PCDC calculations, 155
rate measurements, 233
reactor filters, 310
reference facility, 401
research reactor, 598
response functions, 280
short decay times, 177
spectra, 447
three-dimensional test, 343
uncertainty in, 85, 94
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

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

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

- 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