

Subject Index

A

Absolute fission rates, 522
 Absorbance, neutron, 206, 439
 Absorbed dose, 742
 Accelerator irradiations, 488
 Accelerator mass spectrometry, 508
 Actinide isotopes, 670
 Activation cross-section analysis, 223, 235, 460, 627
 Activation detectors
 boron covers, 642
 in European Community Countries, 627
 problems, 415
 radiation damage experiment in a spallation neutron source, 498
 in a pressurized water reactor, 105, 121
 Activation spectrometry, problems with, 415
 Activity measurements (*See* Dosimetry)
 Adjustment methods, 399, 405, 450, 460
 Aluminum oxide (sapphire), 659
 Amorphous structure materials, 592
 Annealing of steel, 7
 Applications of dosimetry (*See* Dosimetry)
 Area monitoring, 756
 ASPIS-PCA slab geometry benchmarks, 295, 324
 Attenuation, fluence, 90, 642

B

Babcock & Wilcox Owners Group, 90, 155, 379
 Belgium, dosimetry research and applications in, 17, 653, 710
 Benchmarks (*See* Dosimetry, standardization)
 Beryllium neutron sources, 253
 Boron covers for neutron spectrum determination, 642
 Boron isotopes, 699
 BR3 reactor beltline materials, 17
 Buffalo Reactor, 386, 535

Burn-in effects, 670
 Burn-up assessment, 710

C

Calibration, 359, 653, 751
 Californium-252, 223, 340
 Calorimetry, 359, 742
 Capsules, surveillance
 Embrittlement Data Base, 553
 evaluation at Hungarian power plant, 105
 evaluation at Krško, Yugoslavia, power plant, 115
 fluence variations and material properties, 90
 neutron calculations at WWER reactor, experimental validation of, 130
 neutron flux perturbation experiments, 379
 Carolina Power & Light Company, 80
 Cavity dosimetry (*See also* Dosimetry)
 Babcock & Wilcox Owners Group benchmark experiment, 155
 Carolina Power & Light Company dosimetry experience, 80
 ex-vessel, 147, 155, 405
 in-vessel, 405
 regulation, 12
 track recorder reliability studies, 175
 Cavity/nozzle benchmarks, 295
 Ceramics, 576
 Charpy data, 90, 115, 535
 χ^2 distribution, 399
 Cobalt, 720, 734
 Collimation, 522
 Collision probability method, 439
 Color center, 206
 COMPOSI computational code, 576
 Compounds, radiation damage in, 598
 Conduction, direct measurement, 359
 Confidence intervals, 425
 Constant chemistry analysis, 614
 Continuum-neutron fields, 253
 Convection, direct measurement, 359

Coolant-duct benchmarks, 295
 Copper, 508, 515, 614
 Core configuration changes, influences of, 281
 Covariances, 405, 425, 434
 Cross-section measurements and data validation
 activation spectrometry problems, 415
 amorphous structure materials, 592
 Be(*d,n*) neutron source, 253
 data problems, 261
 ⁵⁴Fe(*n,p*)⁵⁴Mn reaction in JENDL-3T, 277
 high-energy neutron dosimetry, 471, 488, 498, 508
 mixed-spectrum reactors, 515
 ⁹³Nb(*n,n'*) fission spectrum, 229, 235
 SPECOMP calculations of damage in compounds, 598
 ⁶³Cu(*n,p*)⁶³Ni reaction, 508
 Czechoslovakia, dosimetry research and applications in, 130, 333

D

Damage prediction and analysis (*See also* Embrittlement, fluence)
 a priori information, usefulness of, 425
 activation spectrometry problems, 415
 amorphous structure materials, 592
 ceramics, 576
 compounds, 598
 constant chemistry analysis, 614
 covariances, role, 405, 425, 434
 dose rate experiments in the Buffalo Reactor, 535
 Embrittlement Data Base, 553
 European workshop on, 549
 experimental validation of calculations, 130, 139
 gamma-ray-induced displacement rates, 603
 global, 592
 Light Water Reactor Pressure Vessel Surveillance Dosimetry Improvement Program of the NRC, 44, 308, 379
 Li₂O, 598
 neutron exposure in the Buffalo reactor, 386
 polyatomic materials, 576
 pressure vessel embrittlement surveillance in Belgium, 17
 sapphire damage monitors, 659
 in a spallation neutron source, 471, 488, 498, 653
 SPECOMP calculations, 598
 surveillance neutron dosimetry at Hungarian plant, 105
 vanadium alloys, 598
 Data Base Embrittlement, 553
 Data consistency, 399
 Data rejection, 399
 Debris beds, 370
 Decay data, problems encountered, 261
Der Spinner, 522
 DIDO test reactor, 439
 Diffusion theory, power, 314
 Direct measurement, calibration problems in, 359
 Discrete ordinates, 642
 Displacement cross sections (*See* Cross section measurements and data validation)
 Displacement rates, gamma-ray induced, 603
 Dose rate, 197, 535 (*See also* Dosimetry, applications and environments)
 Dosimetry
 applications and environments
 calibration problems in direct measurement, 359
 cavity (*See* Cavity dosimetry)
 core configuration changes, influences of, 281
 experimental validation of predictions, 130, 139, 165
 ex-vessel, 105, 147, 155, 405
 fluence estimations in a VVER-440 pressurized water reactor, 121
 fluence variations and materials properties, interactions between, 90
 helium production in fission reactors, 471, 488, 498, 515
 high absorbed dose, 212
 Hungarian power plant, 105
 improvements in France, 71
 in-vessel neutron dosimetry applications, 405
 Light Water Reactor Pressure Vessel Surveillance Dosimetry Improvement Program of the ORC, 44, 308, 379
 medical applications, 699
 multisource, 197
 PAHR irradiation experiment in BR2, 370

- pressure vessel embrittlement
 - surveillance in Belgium, 17
- spallation neutron spectrum, 488, 653
- surveillance capsules at Krško, Yugoslavia, power plant, 115
- surveillance development and standardization in the F.R.G., 38, 165
- gamma ray
 - benchmark studies (*See* Dosimetry, standardization)
 - displacement rate determination, 603
 - neutron sensitivity, 206
 - organic conductor, 212
 - remote mapping, 197
 - transport calculation in ex-core region, 189
- materials used, 627
 - boron, 642
 - germanium, 653
 - lithium fluoride, 155, 206
 - niobium, 71, 121, 139, 223, 245, 688
 - organic conductors, 212
 - sapphire, 659
- measurement methods and devices
 - activation detectors, 105, 121, 415, 627, 642
 - adjustment methods, 399, 405
 - calorimetry, 359, 742
 - capsules (*See* Capsules, surveillance)
 - cavity (*See* Cavity dosimetry)
 - data consistency, 399
 - data rejection, 399
 - direct, calibration problems in, 359
 - epithermal neutron flux, 720, 726
 - fission foils (*See* Foils, fission monitoring)
 - importance sampling, 425
 - interval rule, 726
 - least-squares evaluation method, 340, 425
 - LEPRICON method, 80, 405
 - lithium fluoride gamma dosimetry, 155, 206
 - microcalorimeters, 742
 - n-p* counters, gas filled, 348
 - neutron detectors, self-powered, 720, 726, 734
 - organic conductors, 212
 - photofission measurements, 189, 269
 - pinhole gamma camera, 197
 - radiation absorbed dose calorimetry, 359
 - remote gamma-ray mapping, 197
 - sensitivity, 405
 - spectrum (*See* Spectral determination)
 - spent fuel assemblies, neutron emission effects on, 710
 - threshold detectors, 415, 642
 - track recorders (*See* Track recorders, solid state)
 - transport calculation of gamma field in ex-core region, 189
 - uncertainties, 399, 405
 - unfolding method (*See* Spectra unfolding)
- neutron
 - activation spectrometry problems, 415
 - Babcock & Wilcox Owners Group surveillance capsules, 90, 379
 - boron covers for spectrum determination, 642
 - Buffalo Reactor, 386, 535
 - burn-in effects, 670
 - Carolina Power & Light Company experience, 80
 - χ^2 distribution, 399
 - emulsion measurements and proportional counter perturbation factors in VENUS-I, 348
 - exposure parameters, deviation from threshold detector measurements, 450
 - fast, by fission foils, 634
 - $^{54}\text{Fe}(n,p)^{54}\text{Mn}$ reaction in JENDL-3T, 277
 - fission spectrum averaged cross sections, 235
 - flux perturbation experiment, 379
 - gamma-induced reactions, influences of, 281
 - high-energy neutron dosimetry, 471, 488, 498
 - light-water reactors, research impact on NRC regulation of, 7
 - materials used, 627
 - measurements of niobium-93m, 245
 - niobium preparation, ultra-high purity, 688
 - personnel monitoring, 756
 - problems encountered, 261
 - sapphire, 659
 - self-powered, 720, 726
 - surveillance validation at Gundremmingen, F.R.G., 165
 - track recorder reliability studies, 175
 - ultra-high-purity niobium preparation, 688

- unfolding and damage prediction with and without *a priori* information, 425
- regulation, 7, 12 (*See also* Nuclear Regulatory Commission)
- standardization
 - activity measurements on monitor foils in different laboratories, 653
 - Babcock & Wilcox Owners Group cavity dosimetry experiment, 155
 - burn-in effects, correction of, 670
 - cavity/nozzle, 295
 - Cf-252 neutron spectrum, 340
 - coolant duct, 295
 - covariances, 434
 - in the F.R.G., 38, 165, 340
 - Light Water Reactor Pressure Vessel Surveillance Dosimetry Improvement Program of the NRC, 44, 308, 379
 - NESTOR Shielding and Dosimetry Improvement Programme (NESDIP), 80, 295, 324
 - Oak Ridge PCA radial shield, 295
 - PCA/PSF, 308, 324
 - SEG-V benchmark system, 333
 - VENUS, 17, 80, 314, 348

E

- Embrittlement, fluence
 - Belgian surveillance activities, 17
 - dose rate experiments in Buffalo Reactor, 535
 - dosimetry and regulation, 12
 - Embrittlement Data Base, 553
 - Light Water Reactor Pressure Vessel Surveillance Dosimetry Improvement Program of the NRC, 44, 308, 379
 - USA-Euratom dosimetry research, effect on NRC regulation, 7
 - in a VVER-440 pressurized water reactor, 121
- Emulsions, nuclear research, 348
- ENEA equation, 614
- Energy deposition, 742
- Energy spectrum (*See* Neutron spectrum measurements; Spectra unfolding; Spectral determination)
- Epithermal neutron flux, measurement of, 720, 726
- Epithermal sensitivity, 726
- Erbium emitters, 720
- Euratom-USA dosimetry research, effect on NRC regulation, 7
- European Community Countries, materials used in neutron dosimetry, 627

F

- $^{54}\text{Fe}(n,p)^{54}\text{Mn}$ reaction, 27
- $^{56}\text{Fe}(n,2n)^{55}\text{Fe}$ reaction, 508
- Federal Republic of Germany, dosimetry research and applications in, 38, 165, 425, 653
- FFTF/MOTA, 479
- Filtered neutron beams, 699, 720
- Finland, neutron flux estimations at VVER-440 reactor, 121
- Fission chain yield determination, 634
- Fission damage (*See* Damage prediction and analysis; Embrittlement, fluence)
- Fission foils (*See* Foils, fission monitoring)
- Fission neutron dosimeters (*See* Dosimetry, neutron)
- Fission neutron spectra, 223, 229, 235 (*See also* Neutron spectrum measurements)
- Fission plates, 295
- Fission spectrum averaged cross sections, 277
- Fluence, neutron (*See* Neutron fluence)
- Foils, fission monitoring
 - calibration of a neutron-driven gamma source, 751
 - comparisons of results in different laboratories and plants, 139, 653
 - fast neutron dosimetry in Belgium, 634
 - spallation neutron source, 488, 498
- Fracture toughness data, 90, 115, 535
- France, dosimetry research and applications in, 71, 576, 634, 720
- Fuel assemblies, spent, neutron emission effects on, 710
- Fuel pins, nuclear, 439
- Fusion materials, 479, 508
- Fusion studies
 - helium production in fission reactors, 471, 488, 498, 515
 - high-energy neutron dosimetry, European survey, 471
 - pulsed neutron fields, 522
 - radiation damage correlations, workshop, 549
 - radiation damage experiment, 498

radionuclides in fusion materials, 508
 spallation neutron sources, 471, 488,
 498, 653
 U.S. fusion materials program, 479

G

Gadolinium, 720
 Gamma and neutron calculations, 370
 Gamma dosimeters, 155, 189, 197, 206, 212
 Gamma fields, 751
 Gamma fluence, 155, 189, 197, 281, 603
 Gamma heating, 189
 Gamma sensitivity, 720
 Gamma sources, neutron driven, 751
 Gamma spectroscopy, 508, 515, 603
 Germanium detectors, 653
 Germany, Federal Republic of, dosimetry
 research and applications in, 38,
 165, 425, 653
 Global damage, 592
 GNASH code, 277

H

Hafnium emitters, 720
 Half-life, 223
 Harwell Materials Testing Reactors, 439
 Heat removal, post-accident, 370
 Heat transfer, 359, 742
 Helium production in fission reactors, 471,
 488, 498, 515
 HFIR, 479
 High-energy neutron dosimetry, 471, 488,
 498
 High-purity materials, 627, 688
 History determination of nuclear reactors,
 281
 Hungary, surveillance neutron dosimetry
 in, 105, 642

I

Importance sampling, 425
 Inelastic scatter cross sections, 229
 Integral cross sections, 253
 International Atomic Energy Agency
 (IAEA) Nuclear Data Section, 434
 Interval rule, 726
 Iodination, 688
 Iron, 277, 508, 515
 Irradiation test rigs, 439
 Israel, dosimetry research and applications
 in, 399

Italy, dosimetry research and applications
 in, 592, 653

J

Japan, dosimetry research and applications
 in, 277
 JENDL, 277

L

LAMPF, Los Alamos, 498, 653
 Lead factor, 105
 Least-squares evaluation method, 340, 425
 LEPRICON method, 80, 405
 License renewal of nuclear plants, 99
 Life extension of nuclear plants, 99
 Light Water Reactor Pressure Vessel
 Surveillance Dosimetry
 Improvement Program of the NRC,
 44, 308, 379
 Lindhard equations, 576
 Liquid metal cooled reactors (*See* Nuclear
 reactors)
 Liquid scintillation spectrometry, 245, 508
 Lithium compounds, 576, 598
 Lithium fluoride gamma dosimetry, 155,
 206
 Loviisa, Finland, reactors, 121
 Low-leakage uranium/plutonium core,
 314

M

Mass spectrometry, 508, 515
 Material irradiation (*See* Damage
 prediction and analysis;
 Embrittlement, fluence)
 Materials used in neutron dosimetry
 boron, 642
 germanium, 653
 lithium fluoride, 155, 206
 niobium, 71, 121, 139, 223, 254, 688
 sapphire, 659
 McBEND, NESTOR Shielding and
 Dosimetry Improvement
 Programme (NESDIP), 80, 295
 Measurement devices (*See* Capsules,
 surveillance; Dosimetry,
 measurement methods and devices;
 Foils, fission monitoring; Niobium
 monitors; Track recorders, solid
 state)

Medical applications, 699
 Methods of dosimetry (*See* Dosimetry)
 Microcalorimeters, design, 742
 Monitor foils (*See* Foils, fission monitoring)
 Monitors (*See* Capsules, surveillance; Dosimetry, measurement methods and devices; Foils, fission monitoring; Niobium monitors; Track recorders, solid state)
 Monte Carlo method, 235, 439
 Multisource dosimetry, 197

N

n-p counters, gas filled, 348
 NESTOR Shielding and Dosimetry Improvement Programme (NESDIP), 80, 295, 324
 Netherlands, application of boron covers in, 642
 Neutron absorbers, 206, 439, 699
 Neutron activation, 653
 Neutron and gamma calculations, 370
 Neutron bursts, 522
 Neutron capture gamma rays, 751
 Neutron cross sections (*See* Cross section measurement and data validation)
 Neutron detectors, self-powered, 720, 726
 Neutron dosimetry (*See* Dosimetry, neutron)
 Neutron fluence
 adjustment methods, 399, 405
 attenuation, 90
 Buffalo reactor, 386, 535
 cavity dosimetry benchmark experiment, 155
 χ^2 distribution, 399
 core configuration influences, 281
 cross sections at 14.8 MeV, 508
 damage prediction (*See* Damage prediction and analysis)
 embrittlement (*See* Embrittlement, fluence)
 energy spectra (*See* Neutron spectrum measurements)
 epithermal, 720, 726
 estimations in a VVER-440 pressurized water reactor, 121
 experimental validation of calculations, 130
 ex-vessel neutron dosimetry applications, 147, 105, 155, 405
 gamma-induced reactions, influences of, 281
 in-vessel neutron dosimetry applications, 405
 irradiation test rig design, 439
 LEPRICON measurement method, 80, 405
 niobium-93m measurements, 245
 personnel monitoring, 756
 perturbation experiment, 379
 pulsed fields, 522
 rate, 535, 710
 spectrum determination (*See* Neutron spectrum measurements)
 transition temperature shift in pressure vessel steels, 614
 unfolding method (*See* Spectra unfolding)
 USA-Euratom dosimetry research, 7
 variations and materials properties, interactions between, 90
 Neutron-induced reactions, 121, 253 (*See also* Damage prediction and analysis; Embrittlement, fluence)
 Neutron irradiation (*See* Neutron fluence)
 Neutron metrology (*See* Dosimetry, neutron; Neutron detectors, self-powered)
 Neutron reactions, 515
 Neutron sensitivity, 734
 Neutron spectrum measurements (*See also* Dosimetry, standardization; Spectral determination)
 adjustments, 450, 460
 beryllium sources, 253
 boron covers, 642
 core configuration and gamma-induced reactions, influences of, 281
 experimental validation of calculations at WWER reactor, 130, 333
 filtered neutron beams, 699
 helium production, 471, 498, 515
 medical applications, 699
 niobium monitors, 223, 229, 235, 688
 personnel monitoring, 756
 pulsed fields, 522
 sapphire damage monitors, 659
 surveillance in Hungary, 105
 USA-Euratom dosimetry research, 7
 Nickel and nickel isotope reactions, 508, 515, 614
 Niobium cross sections, 229, 235, 515
 Niobium fission measurement (*See* Niobium monitors)
 Niobium monitors
 fast neutron metrology, 245
 fission spectrum cross sections, 229, 235

- nuclear data for use of, 223
 - predictions, experimental validation of, 139
 - preparation and use, 139
 - recent improvements, 71
 - ultra-high-purity niobium preparation, 688
 - in a VVER-440 pressurized water reactor, 121
 - Notch toughness of pressure-vessel steel, 90, 115, 535
 - Nuclear decay data, 223
 - Nuclear environment studies (*See* Dosimetry)
 - Nuclear fuel assemblies, 439, 710
 - Nuclear fusion, (*See* Fusion studies)
 - Nuclear plants (*See* Dosimetry; Nuclear reactors; Nuclear fuel assemblies)
 - Nuclear reactor regulation, 12 (*See also* Nuclear Regulatory Commission)
 - Nuclear reactors (*See also* Damage prediction and analysis; Dosimetry; Embrittlement, fluence)
 - ASPIS, 295, 324
 - BR2, PAHR irradiation experiment in, 370
 - Buffalo, neutron exposure determination and dose rate, 386, 535
 - Carolina Power & Light Company dosimetry experience, 80
 - core configuration changes, influences of, 281
 - embrittlement surveillance in Belgium, 17
 - emulsion measurements and proportional counter perturbation factors in VENUS-I, 348
 - fast breeder, 370
 - fluence estimations in a VVER-440 pressurized water reactor, 121
 - fuel assemblies, 439, 710
 - gamma-induced reactions, 281, 603
 - Harwell materials testing, 439
 - helium production in 471, 488, 498, 515
 - Hungarian plant, surveillance neutron dosimetry practice, 105
 - Krško, Yugoslavia, power plant, surveillance capsule use, 115
 - LAMPF, Los Alamos, 498, 653
 - license renewal, 99
 - life extension, 99
 - Light Water Reactor Pressure Vessel Surveillance Dosimetry Improvement Program of the NRC, 44, 308, 379
 - low-leakage uranium/plutonium core, 314
 - Masurca facility, 634
 - MELUSINE, 720
 - National Bureau of Standards Reactor, 751
 - Oak Ridge National Laboratory (ORNL)
 - Poolside Facility, 379, 603
 - photofission measurements, 189, 269
 - power distribution calculations and measurements, 314
 - regulation, 12
 - SEG-V configuration, 333
 - shielding (*See* Shielding)
 - SILOE, 720
 - standard uranium core, 314
 - surveillance dosimetry, recent improvements in France, 71
 - surveillance development and standardization in the F.R.G., 38, 165
 - TIHANGE I, 710
 - track recorder reliability studies, 175
 - transport calculation of gamma field in ex-core region, 189
 - USA-Euratom dosimetry research, effect on NRC regulation, 7
 - VENUS, 17, 80, 314, 348
 - WWER reactor, experimental validation of neutron calculations, 130
 - Nuclear Regulatory Commission (NRC)
 - dose rate experiments in Buffalo Reactor, 535
 - dosimetry research impact on regulation of light-water reactors, 7
 - Light Water Reactor Pressure Vessel Surveillance Dosimetry Improvement Program, 44, 308, 379
 - pressure vessel embrittlement surveillance in Belgium, 17
 - Nuclear research emusions, 348
 - NUMARC, 99
 - NUPLEX, 99
- O**
- Oak Ridge National Laboratory (ORNL)
 - Poolside Facility, 379
 - Organic conductors, 212
 - ORIGEN-2 point model depletion code, 710
 - Osiris reactor, 212
- P**
- PCA/PSF benchmark, 308, 324
 - Personnel monitoring, 756

Photofission measurements, 189, 269 (*See also* Dosimetry)
 Physical radiation effects (*See* Damage prediction and analysis; Embrittlement, fluence)
 Pinhole gamma camera, 197
 Plates, fission, 295
 PLUTO test reactor, 439
 Polyatomic materials, damage functions, 576
 Portugal, research on self-powered neutron detectors, 726, 734
 Post-accident heat removal, 370
 Power distribution calculations, VENUS-I and VENUS-II, 314
 Pressure vessel steels (*See* Damage prediction and analysis; Embrittlement, fluence; Steels, pressure vessel)
 Pressure vessel surveillance dosimetry (*See* Dosimetry)
 Pressure vessels (*See* Damage prediction and analysis; Embrittlement, fluence; Nuclear reactors; Steels, pressure vessel)
 Pressurized thermal shock, 80
 Pressurized water reactors (*See* Nuclear reactors)
 Probability density, 425
 Problems encountered in neutron metrology, 261
 Prompt-capture gamma spectrum, 734
 Proportional counter perturbation factors, 348
 Pulsed neutron fields, 522
 Purification of materials, 688

R

Radial shields, 80, 295, 324
 Radiation absorbed dose, 359
 Radiation effects (*See* Damage prediction and analysis; Embrittlement, fluence)
 Radioactive sources, 197, 471, 488, 498, 653
 Radioactivity in fusion materials, 508
 Radiometric monitors (*See* Capsules, surveillance; Dosimetry, measurement methods and devices; Niobium monitors; Track recorders, solid state)
 Radionuclides in fusion materials, 508
 Radiotherapy, 699
 RANKERN, NESTOR Shielding and

Dosimetry Improvement Programme (NESDIP), 80, 295
 Reactor cavity, 105 (*See also* Cavity dosimetry)
 Reactor dosimetry (*See* Cavity dosimetry; Dosimetry)
 Reactor Osiris, 212
 Reactor pressure vessels (*See* Damage prediction and analysis; Embrittlement, fluence; Nuclear reactors; Steels, pressure vessel)
 Reactor vessel surveillance capsules (*See* Capsules, surveillance)
 Reactors, nuclear (*See* Dosimetry; Nuclear reactors; Nuclear fuel assemblies)
 REPLICA configuration, 324
 Rhodium emitters, 720
 Rotating devices, 522
 RT_{NDT} temperature, 115

S

SAND-II spectrum adjustment program, 333, 460, 642
 Sapphire damage monitors, 659
 Scanner, automated, 676
 SEG-V configuration, 333
 Self-shielding correction, 726
 Sensitivity, 405, 734
 Shielding, radiation, 80, 130, 295, 324
 Shrouding, 720
 Silver emitters, 720
 Spallation, 471, 488, 498, 653
 Specimens, surveillance, 105, 139, 488, 498, 634
 SPECOMP calculations, 598
 SPECTER calculations, 598
 Spectra unfolding
 a priori information, effect of, 425
 activation spectrometry problems, 415
 adjustment methods, 399
 boron covers, 642
 LEPRICON methodology, 405
 neutron spectrum measurements in SEG-V, 333
 radiation damage experiment in spallation neutron source, 498
 Spectral determination, 245, 508, 515, 603, 642 (*See also* Dosimetry, standardization; Neutron spectrum measurements; X-ray spectrometry)
 Spectrophotography, 206
 Spectrum adjustments, 450, 460
 Spectrum-averaged cross sections, 223
 Spectrum measurements (*See* Dosimetry;

Neutron spectrum measurements;
Standardization)
Spent fuel assemblies, neutron emission
effects on, 710
Spontaneous fission, 340
Standard uranium core, 314
Standardization of dosimetry (*See*
Dosimetry, standardization)
STAY/SL unfolding code, 115, 425, 642
Steels, pressure vessel (*See also* Damage
prediction and analysis;
Embrittlement, fluence)
A 302-B: 535
A 508: 614
A 533: 535, 614
Charpy data, 90, 115, 535
Embrittlement Data Base, 553
embrittlement surveillance in Belgium,
17
fluence variations, effects on properties,
90
transition temperature shift, 614
USA-Euratom dosimetry research, effect
on NRC regulation, 7
Submerged-arc welding, 535
Surveillance capsules (*See* Capsules,
surveillance)
Surveillance Dosimetry Improvement
Program of the NRC, 7, 44, 308,
379
Surveillance specimens, 105, 139, 488,
498, 634
Switzerland, fusion research in, 488, 653

T

Tantalum, 688
Temperature treatment 688
Tension test, 535
Test reactor irradiations for fast reactors,
370
Test rigs, design of, 439
Thermal sensitivity, 726
Thermal shock, pressurized, 80
Thermocouples, 742
Threshold detector measurements, 269,
415, 450, 642
Threshold energy, 277
Time dependence and resolution, 522
Titanium, 515
Tokamak devices, 471
Total absolute delayed neutron yield
determination, 634
Track counter, Westinghouse automated,
676

Track recorders, solid state
Carolina Power & Light Company
experience, 80
ex-vessel monitoring, 147, 155
personnel monitoring, 756
pulsed neutron fields, observation of,
522
reliability studies, 175
Westinghouse automated track counter,
676
Transition temperature shift, 614
Transmission measurements, 370
Transmutation products, 471
Transport calculations, 165
Trend curves, 44, 308, 379
Tumors, 699
Two-dimensional neutron calculations,
130

U

Uncertainties in measurement and
extrapolation, 399, 405
Unfolding (*See* Spectra unfolding)
United Kingdom, dosimetry research and
applications in, 80, 295, 324, 439,
659
U.S. Nuclear Regulatory Commission (*See*
Nuclear Regulatory Commission)

V

Vanadium alloys, 598
VENUS, 17, 80, 314, 348

W

Welding, submerged arc, 535

X

X-ray spectrometry
comparison of neutron dosimetry at
three plants, 139
⁹⁹Nb(*n, n'*), 229, 235
^{93m}Nb, 245
nuclear data for niobium monitor use,
223
radionuclides, 508

Y

Yugoslavia, surveillance capsules at Krško
power plant, 115