

# Work

## Summary

The Radiation Center offers a wide variety of resources for teaching, research, and service related to radiation and radioactive materials. Some of these are discussed in detail in other parts of this report. The purpose of this section is to summarize the teaching, research, and service efforts carried out during the current reporting period.

## Teaching

An important responsibility of the Radiation Center and the reactor is to support OSU's academic programs. Implementation of this support occurs through direct involvement of the Center's staff and facilities in the teaching programs of various departments and through participation in University research programs. Table III.2 plus the "Training and Instruction" section (see next page) provide detailed information on the use of the Radiation Center and reactor for instruction and training.

## Research and Service

Almost all Radiation Center research and service work is tracked by means of a project database. When a request for facility use is received, a project number is assigned and the project is added to the database. The database includes such information as the project number, data about the person and institution requesting the work, information about students involved, a description of the project, Radiation Center resources needed, the Radiation Center project manager, status of individual runs, billing information, and the funding source.

Table VI.1 provides a summary of institutions which used the Radiation Center during this reporting period. This table also includes additional information about the number of academic personnel involved, the number of students involved, and the number of uses logged for each organization.

The major table in this section is Table VI.2. This table provides a listing of the research and service projects carried out during this reporting period and lists information relating to the personnel and institution involved, the type of project, and the funding agency.

Projects which used the reactor are indicated by an asterisk. In addition to identifying specific projects carried out during the current reporting period, Part VI also highlights major Radiation Center capabilities in research and service. These unique Center functions are described in the following text.

### *Neutron Activation Analysis*

Neutron activation analysis (NAA) stands at the forefront of techniques for the quantitative multi-element analysis of major, minor, trace, and rare elements. The principle involved in NAA consists of first irradiating a sample with neutrons in a nuclear reactor such as the OSTR to produce specific radionuclides. After the irradiation, the characteristic gamma rays emitted by the decaying radionuclides are quantitatively measured by suitable semiconductor radiation detectors, and the gamma rays detected at a particular energy are usually indicative of a specific radionuclide's presence. Computerized data reduction of the gamma ray spectra then yields the concentrations of the various elements in samples being studied. With sequential instrumental NAA it is possible to measure quantitatively about 35 elements in small samples (5 to 100 mg), and for activable elements the lower limit of detection is on the order of parts per million or parts per billion, depending on the element.

The Radiation Center's NAA laboratory has analyzed the major, minor, and trace element content of tens of thousands of samples covering essentially the complete spectrum of material types and involving virtually every scientific and technical field.

While some researchers perform their own sample counting on their own or on Radiation Center equipment, the Radiation Center provides a complete NAA service for researchers and others who may require it. This includes sample preparation, sequential irradiation and counting, and data reduction and analysis.

### *Irradiations*

As described throughout this report, a major capability of the Radiation Center involves the irradiation of a large variety of substances with gamma rays and neutrons. Detailed data on these irradiations and their use are included in Part III as well as in the "Research & Service" text of this section.

### *Radiological Emergency Response Services*

The Radiation Center has an emergency response team capable of responding to all types of radiological accidents. This team directly supports the City of Corvallis and Benton County emergency response organizations and medical facilities. The team can also provide assistance at the scene of any radiological incident anywhere in the state of Oregon on behalf of the Oregon Radiation Protection Services and the Oregon Department of Energy.

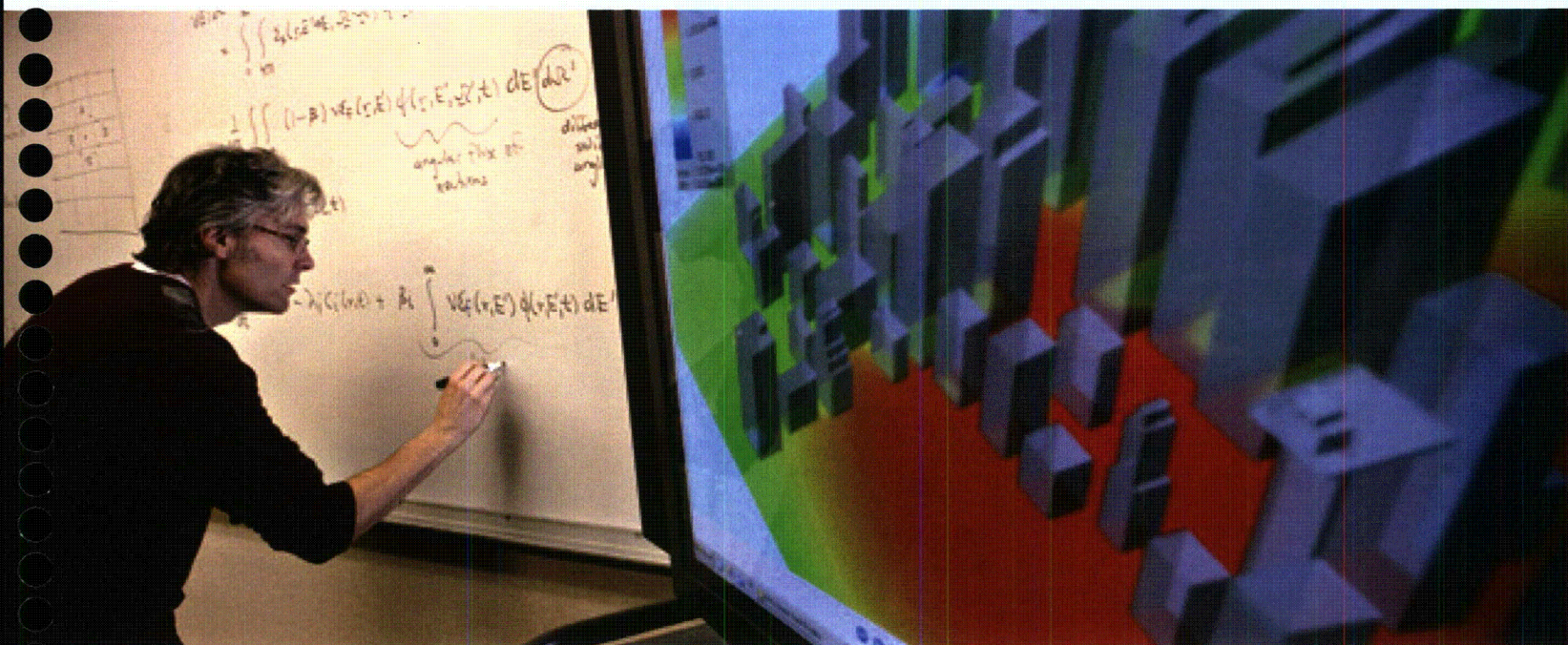
The Radiation Center maintains dedicated stocks of radiological emergency response equipment and instrumentation. These items are located at the Radiation Center and at the Good Samaritan Hospital in Corvallis.

During the current reporting period, the Radiation Center emergency response team conducted several training sessions and exercises, but was not required to respond to any actual incidents.

### *Training and Instruction*

In addition to the academic laboratory classes and courses discussed in Parts III, and VI, and in addition to the routine training needed to meet the requirements of the OSTR Emergency Response Plan, Physical Security Plan, and operator requalification program, the Radiation Center is also used for special training programs. Radiation Center staff are well experienced in conducting these special programs and regularly offer training in areas such as research reactor operations, research reactor management, research reactor radiation protection, radiological emergency response, reactor behavior (for nuclear power plant operators), neutron activation analysis, nuclear chemistry, and nuclear safety analysis.

Special training programs generally fall into one of several categories: visiting faculty and research scientists; International Atomic Energy Agency fellows; special short-term courses; or individual reactor operator or health physics training programs. During this reporting period there were a large number of such people as shown in the People Section.



As has been the practice since 1985, Radiation Center personnel annually present a HAZMAT Response Team Radiological Course. This year the course was held at Oregon State University.

### *Radiation Protection Services*

The primary purpose of the radiation protection program at the Radiation Center is to support the instruction and research conducted at the Center. However, due to the high quality of the program and the level of expertise and equipment available, the Radiation Center is also able to provide health physics services in support of OSU Radiation Safety and to assist other state and federal agencies. The Radiation Center does not compete with private industry, but supplies health physics services which are not readily available elsewhere. In the case of support provided to state agencies, this definitely helps to optimize the utilization of state resources.

The Radiation Center is capable of providing health physics services in any of the areas which are discussed in Part V. These include personnel monitoring, radiation surveys, sealed source leak testing, packaging and shipment of radioactive materials, calibration and repair of radiation monitoring instruments (discussed in detail in Part VI), radioactive waste disposal, radioactive material hood flow surveys, and radiation safety analysis and audits.

The Radiation Center also provides services and technical support as a radiation laboratory to the State of Oregon Radiation Protection Services (RPS) in the event of a radiological emergency within the state of Oregon. In this role, the Radiation Center will provide gamma ray spectrometric analysis of water, soil, milk, food products, vegetation, and air samples collected by RPS radiological response field teams. As part of the ongoing preparation for this emergency support, the Radiation Center participates in inter-institution drills.

### *Radiological Instrument Repair and Calibration*

While repair of nuclear instrumentation is a practical necessity, routine calibration of these instruments is a licensing and regulatory requirement which must be met. As a result, the Radiation Center operates a radiation instrument repair and calibration facility which can accommodate a wide variety of equipment.

The Center's scientific instrument repair facility performs maintenance and repair on all types of radiation detectors and other nuclear instrumentation. Since the Radiation Center's own programs regularly utilize a wide range of nuclear

instruments, components for most common repairs are often on hand and repair time is therefore minimized.

In addition to the instrument repair capability, the Radiation Center has a facility for calibrating essentially all types of radiation monitoring instruments. This includes typical portable monitoring instrumentation for the detection and measurement of alpha, beta, gamma, and neutron radiation, as well as instruments designed for low-level environmental monitoring. Higher range instruments for use in radiation accident situations can also be calibrated in most cases. Instrument calibrations are performed using radiation sources certified by the National Institute of Standards and Technology (NIST) or traceable to NIST.

Table VI.3 is a summary of the instruments which were calibrated in support of the Radiation Center's instructional and research programs and the OSTR Emergency Plan, while Table VI.4 shows instruments calibrated for other OSU departments and non-OSU agencies.

### *Consultation*

Radiation Center staff are available to provide consultation services in any of the areas discussed in this Annual Report, but in particular on the subjects of research reactor operations and use, radiation protection, neutron activation analysis, radiation shielding, radiological emergency response, and radiotracer methods.

Records are not normally kept of such consultations, as they often take the form of telephone conversations with researchers encountering problems or planning the design of experiments. Many faculty members housed in the Radiation Center have ongoing professional consulting functions with various organizations, in addition to sitting on numerous committees in advisory capacities.

**Table VI.1  
Institutions, Agencies and Groups Which  
Utilized the Radiation Center**

Intuitions, Agencies and Groups	Number of Projects	Number of Times of Faculty Involvement	Number of Students Involved	Number of Uses of Center Facilities
*Oregon State University <sup>(1)</sup> Corvallis, OR USA	29	57	13	229 <sup>(2)</sup>
*Oregon State University - Educational Tours Corvallis, OR USA	3	16	0	19
CH2M Hill Inc Corvallis, OR USA	1	0	0	2
City of Salem Salem, OR USA	1	0	0	2
Clair Company Corvallis, OR USA	1	0	0	1
Coffin Butte Landfill Corvallis, OR USA	1	0	0	1
Eugene Sand & Gravel, Inc. Eugene, OR USA	1	0	0	1
Evanite Fiber Corporation Corvallis, OR USA	1	0	0	1
NETL Albany, OR USA	1	0	0	7
Nunhems USA, Inc. Salem, OR USA	1	0	0	3
Oregon State Fire Marshal Salem, OR USA	1	0	0	15
Pacific Analytical Laboratory Corvallis, OR USA	1	0	0	1
SIGA Technologies, Inc. Corvallis, OR USA	1	0	0	2
Agate Engineering, Inc. Grants Pass, OR USA	1	0	0	1
Cascade Research Group Grants Pass, OR USA	1	0	0	1

**Table VI.1 (continued)**  
**Institutions, Agencies and Groups Which**  
**Utilized the Radiation Center**

Intuitions, Agencies and Groups	Number of Projects	Number of Times of Faculty Involvement	Number of Students Involved	Number of Uses of Center Facilities
ESCO Corporation Portland, OR USA	1	0	0	6
Federal Aviation Administration Portland, OR USA	1	0	0	5
Feline Thyroid Clinic Springfield, OR USA	1	0	0	1
Gene Tools, LLC Philomath, OR USA	1	0	0	3
Grande Ronde Hospital La Grande, OR USA	1	0	0	5
*Intel Hillsboro, OR USA	1	1	0	1
Knife River Tangent, OR USA	1	0	0	4
Lebanon Community Hospital Lebanon, OR USA	1	0	0	6
Occupational Health Lab Portland, OR USA	1	0	0	13
Oregon Health Sciences University Portland, OR USA	1	0	0	27
Portland State University Portland, OR USA	1	0	0	15
Radiation Protection Services Portland, OR USA	1	0	0	93
US National Parks Service Crater Lake, OR USA	1	0	0	3
Veterinary Diagnostic Imaging & Cytopathology Clackamas, OR USA	1	0	0	2
Weyerhaeuser Sweet Home, OR USA	1	0	0	1

**Table VI.1 (continued)**  
**Institutions, Agencies and Groups Which**  
**Utilized the Radiation Center**

Intuitions, Agencies and Groups	Number of Projects	Number of Times of Faculty Involvement	Number of Students Involved	Number of Uses of Center Facilities
James Wilkes Seattle, WA USA	1	0	0	1
*Berkeley Geochronology Center Berkeley, CA USA	1	0	9	12
*California State University at Fullerton Fullerton, CA USA	1	1	0	1
*Royal Ontario Museum Toronto, Ontario CANADA	1	2	0	5
*Stanford University Stanford, CA USA	1	1	0	1
*University of California at Berkeley Berkeley, CA USA	1	2	1	2
*University of California at Santa Barbara Santa Barbara, CA USA	1	1	0	1
*Materion Natural Resources Delta, UT USA	1	0	0	22
*University of Arizona Tucson, AZ USA	3	3	1	10
*University of Chicago Chicago, IL USA	2	1	0	7
*University of Wisconsin Madison, WI USA	1	1	0	8
*University of Michigan Ann Arbor, MI USA	4	15	0	38
Lonza Alpharetta, GA USA	3	1	0	8
*Materion Brush, Inc. Elmore, OH USA	1	0	0	4
*ATI Allegheny Natrona Heights, PA USA	1	1	0	3

**Table VI.1 (continued)**  
**Institutions, Agencies and Groups Which**  
**Utilized the Radiation Center**

Intuitions, Agencies and Groups	Number of Projects	Number of Times of Faculty Involvement	Number of Students Involved	Number of Uses of Center Facilities
Lehigh University Bethlehem, PA USA	1	0	0	2
*Plattsburgh State University Plattsburgh, NY USA	1	1	0	2
*Syracuse University Syracuse, NY USA	2	2	4	4
*Union College Schenectady, NY USA	1	1	0	3
*University of Pennsylvania Philadelphia, PA USA	1	2	0	8
*JP Laboratories, Inc. Middlesex, NJ USA	1	1	0	1
*University of Vermont Burlington, VT USA	1	1	0	1
*Benjamin Mutin Cambridge, MA UAA	2	4	0	13
*University of Florida Gainesville, FL USA	1	1	6	4
*Quaternary Dating Laboratory Roskilde, Denmark	1	0	0	4
*Scottish Universities Environmantal Research Centre East Kilbride, UK	1	0	0	10
*University of Glasgow Glasgow SCOTLAND	1	1	0	2
*Universite Paris-Sud Paris, FRANCE	1	1	0	2
*Universite Rennes 1 Rennes, FRANCE	1	1	0	1
ETH Zurich Zurich, SWITZERLAND	1	1	0	2

**Table VI.1 (continued)**  
**Institutions, Agencies and Groups Which**  
**Utilized the Radiation Center**

Intuitions, Agencies and Groups	Number of Projects	Number of Times of Faculty Involvement	Number of Students Involved	Number of Uses of Center Facilities
*Geologisch-Palaontologisches Institut Basel, SWITZERLAND	1	1	0	1
*Lund University Lund, SWEDEN	1	0	0	3
Polish Academy of Sciences Krakow, POLAND	1	0	0	3
Universita' Degli Studi di Padova Padova,	1	2	0	2
*Universita' di Bologna Bologna, ITALY	1	1	0	1
*Universitat Potsdam Postdam, GERMANY	1	0	3	1
*University of Geneva Geneva, SWITZERLAND	1	1	4	7
*University of Goettingen Gottingen, GERMANY	1	1	5	2
*University of Melbourne Melbourne, Victoria AUSTRALIA	1	1	0	3
*University of Queensland Brisbane, Queensland Australia	1	1	0	1
<b>Totals</b>	<b>110</b>	<b>128</b>	<b>46</b>	<b>667</b>

\* Project which involves the OSTR.

- (1) Use by Oregon State University does not include any teaching activities or classes accommodated by the Radiation Center.
- (2) This number does not include on going projects being performed by residents of the Radiation Center such as the APEX project, others in the Department of Nuclear Engineering and Radiation Health Physics or Department of Chemistry or projects conducted by Dr. Walt Loveland, which involve daily use of the Radiation Center facilities.



**Table VI.2**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
444	Duncan	Oregon State University	Ar-40/Ar-39 Dating of Oceanographic Samples	Production of Ar-39 from K-39 to measure radiometric ages on basaltic rocks from ocean basins.	OSU Oceanography Department
481	Le	Oregon Health Sciences University	Instrument Calibration	Instrument calibration.	Oregon Health Sciences University
488	Farmer	Oregon State University	Instrument Calibration	Instrument calibration.	OSU - various departments
664	Reese	Oregon State University	Good Samaritan Hospital Instrument Calibration	Instrument calibration.	OSU Radiation Center
815	Morrell	Oregon State University	Sterilization of Wood Samples	Sterilization of wood samples to 2.5 Mrads in Co-60 irradiator for fungal evaluations.	OSU Forest Products
920	Becker	Berkeley Geochronology Center	Ar-39/Ar-40 Age Dating	Production of Ar-39 from K-39 to determine ages in various anthropologic and geologic materials.	Berkeley Geochronology Center
932	Dumitru	Stanford University	Fission Track Dating	Thermal column irradiation of geological samples for fission track age-dating.	Stanford University Geology Department
1018	Gashwiler	Occupational Health Lab	Calibration of Nuclear Instruments	Instrument calibration.	Occupational Health Laboratory
1075	Teaching and Tours	University of California at Berkeley	Activation Analysis Experiment for NE Class	Activation Analysis Experiment for NE Class. Irradiation of small, stainless steel discs for use in a nuclear engineering radiation measurements laboratory.	University of California at Berkeley
1177	Garver	Union College	Fission Track Analysis of Rock Ages	Use of thermal column irradiations to perform fission track analysis to determine rock ages.	Union College, NY
1185	Elting	University of Oregon	Instrument Calibration	Radiological instrument calibration for the Environmental Health and Safety Office.	University of Oregon
1188	Salinas	Rogue Community College	Photoplankton Growth in Southern Oregon Lakes	C-14 liquid scintillation counting of radiotracers produced in a photoplankton study of southern Oregon lakes: Miller Lake, Lake of the Woods, Diamond Lake, and Waldo Lake.	Rogue Community College
1191	Vasconcelos	University of Queensland	Ar-39/Ar-40 Age Dating	Production of Ar-39 from K-39 to determine ages in various anthropologic and geologic materials.	Earth Sciences, University of Queensland

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1354	Lindsay	Radiation Protection Services	Radiological Instrument Calibration	Instrument calibration.	State of Oregon Radiation Protection Services
1366	Quidelleur	Universite Paris-Sud	Ar-Ar Geochronology	Determination of geological samples via Ar-Ar radiometric dating.	Universite Paris-Sud
1404	Riera-Lizarau	Oregon State University	Evaluation of wheat DNA	Gamma irradiation of wheat seeds	OSU Crop and Soil Science
1415	McGinness	ESCO Corporation	Calibration of Instruments	Instrument calibration	ESCO Corporation
1419	Krane	Oregon State University	Nuclear Structure of N=90 Isotones	Study of N=90 isotone structure (Sm-152, Gd-154, Dy-156) from decays of Eu-152, Eu-152m, Eu-154, Tb-154, and Ho-156. Samples will be counted at LBNL.	OSU Physics Department
1464	Slavens	USDOE Albany Research Center	Instrument Calibration	Instrument calibration.	USDOE Albany Research Center
1465	Singer	University of Wisconsin	Ar-40/Ar-39 Dating of Young Geologic Materials	Irradiation of geological materials such as volcanic rocks from sea floor, etc. for Ar-40/Ar-39 dating.	University of Wisconsin
1468	Hu	University of California at Berkeley	Chemistry 146 Experiment	NAA Laboratory experiment.	University of California at Berkeley
1470	Shatswell	SIGA Technologies, Inc.	Instrument Calibration	Instrument calibration.	Siga Pharmaceuticals
1492	Stiger	Federal Aviation Administration	Instrument Calibration	Instrument calibration.	Federal Aviation Administration
1503	Teaching and Tours	Non-Educational Tours	Non-Educational Tours	Tours for guests, university functions, student recruitment.	NA
1504	Teaching and Tours	Oregon State University - Educational Tours	OSU Nuclear Engineering & Radiation Health Physics Department	OSTR tour and reactor lab.	NA
1505	Teaching and Tours	Oregon State University - Educational Tours	OSU Chemistry Department	OSTR tour, teaching labs, and/or half-life experiment.	NA
1506	Teaching and Tours	Oregon State University - Educational Tours	OSU Geosciences Department	OSTR tour.	NA

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1507	Teaching and Tours	Oregon State University - Educational Tours	OSU Physics Department	OSTR tour.	NA
1509	Teaching and Tours	Oregon State University - Educational Tours	HAZMAT course tours	First responder training tours.	NA
1510	Teaching and Tours	Oregon State University - Educational Tours	Science and Mathematics Investigative Learning Experience	OSTR tour and half-life experiment.	NA
1511	Teaching and Tours	Oregon State University - Educational Tours	Reactor Staff Use	Reactor operation required for conduct of operations testing, operator training, calibration runs, encapsulation tests and other.	NA
1512	Teaching and Tours	Linn Benton Community College	Linn Benton Community College Tours/Experiments	OSTR tour and half-life experiment.	NA
1514	Sobel	Universitat Potsdam	Apatite Fission Track Analysis	Age determination of apatites by fission track analysis.	Universitat Potsdam
1519	Dunkl	University of Goettingen	Fission Track Analysis of Apatites	Fission track dating method on apatites: use of fission tracks from decay of U-238 and U-235 to determine the cooling age of apatites.	University of Tuebingen
1523	Zattin	Universita' Degli Studi di Padova	Fission track analysis of Apatites	Fission track dating method on apatites by fission track analysis.	NA
1527	Teaching and Tours	Oregon State University - Educational Tours	Odyssey Orientation Class	OSTR tour.	NA
1528	Teaching and Tours	Oregon State University - Educational Tours	Upward Bound	OSTR tour.	NA
1529	Teaching and Tours	Oregon State University - Educational Tours	OSU Connect	OSTR tour.	NA
1530	Teaching and Tours	Newport School District	Newport School District	OSTR tour.	NA
1531	Teaching and Tours	Central Oregon Community College	Central Oregon Community College Engineering	OSTR tour for Engineering	NA

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1535	Teaching and Tours	Corvallis School District	Corvallis School District	OSTR tour.	NA
1537	Teaching and Tours	Oregon State University - Educational Tours	Naval Science Department	OSTR tour.	NA
1538	Teaching and Tours	Oregon State University - Educational Tours	OSU Speech Department	OSTR tour.	NA
1542	Teaching and Tours	Oregon State University - Educational Tours	Engineering Sciences Classes	OSTR tour.	NA
1543	Bailey	Veterinary Diagnostic Imaging & Cytopathology	Instrument Calibration	Instrument calibration.	Veterinary Diagnostic Imaging & Cytopathology
1544	Teaching and Tours	West Albany High School	West Albany High School	OSTR tour and half-life experiment.	NA
1545	Teaching and Tours	Oregon State University - Educational Tours	OSU Educational Tours	OSTR tour.	NA
1548	Teaching and Tours	Willamette Valley Community School	Willamette Valley Community School	OSTR tour.	NA
1555	Fitzgerald	Syracuse University	Fission track thermochronology	Irradiation to induce U-235 fission for fission track thermal history dating, especially for hydrocarbon exploration. The main thrust is towards tectonics, in particular the uplift and formation of mountain ranges.	Syracuse University
1583	Teaching and Tours	Neahkahnie High School	Neahkahnie High School	OSTR tour.	NA
1584	Teaching and Tours	Reed College	Reed College Staff & Trainees	OSTR tour for Reed College Staff & Trainees	NA
1611	Teaching and Tours	Grants Pass High School	Grants Pass High School	OSTR tour.	NA
1613	Teaching and Tours	Silver Falls School District	Silver Falls School District	OSTR tour.	NA

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress  
 at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1614	Teaching and Tours	Marist High School	Marist High School	OSTR tour and half-life experiment.	NA
1617	Spikings	University of Geneva	Ar-Ar geochronology and Fission Track dating	Argon dating of Chilean granites.	University of Geneva
1621	Foster	University of Florida	Irradiation for Ar/Ar Analysis	Ar/Ar analysis of geological samples.	University of Florida
1622	Reese	Oregon State University	Flux Measurements of OSTR	Measurement of neutron flux in various irradiation facilities.	NA
1623	Blythe	Occidental College	Fission Track Analysis	Fission track Thermochronology of geological samples	Occidental College
1653	Teaching and Tours	Madison High School	Madison High School Senior Science Class	OSTR tour for Senior Science Class	NA
1655	Teaching and Tours	Future Farmers of America	OSTR Tour	OSTR tour	NA
1657	Teaching and Tours	Richland High School	Richland High School	OSTR tour.	NA
1660	Reese	Oregon State University	Isotope and Container Testing	Testing of containers and source material	NA
1667	Teaching and Tours	Yamhill-Carlton High School	Teaching and Tour		NA
1673	Teaching and Tours	Heal College	Heal College Physics Department	OSTR tour.	NA
1674	Niles	Oregon Department of Energy	Radiological Emergency Support	Radiological emergency support of OOE related to instrument calibration, radiological and RAM transport consulting, and maintenance of radiological analysis laboratory at the Radiation Center.	Oregon Department of Energy
1677	Zuffa	Universita' di Bologna	Fission Track Dating	Use of fission track from U-235 to determine uranium content in rock	Universita' di Bologna
1687	Teaching and Tours	Inavale Grade School	Reactor Tour	General reactor tour	NA
1690	Teaching and Tours	Wilson High School	Reactor Tour	D300 Reactor Tour	NA

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1691	Teaching and Tours	Lost River High School	Reactor Tour	D300 Reactor Tour	NA
1692	Choi	Arch Chemicals Inc.	Screening Tests of Wood Decay	This is to build up basic knowledge on the efficacy of a copper based preservative in preventing decay of wood inhabiting basidiomycetes.	Arch Chemical Inc.
1695	Teaching and Tours	Transitional Learning	Reactor Tour	Reactor Tour in D300 only	NA
1696	Sayer	Marquess & Associates Inc.	Instrument Calibration	Instrument calibration	Marquess & Associates Inc.
1699	Teaching and Tours	Philomath High School	Reactor Tour	Tour of NAA and gas chromatograph capabilities in the Radiation Center	NA
1700	Frantz	Reed College	Instrument calibration	Instrument calibration	Reed College
1714		Lebanon Community Hospital	Instrument Calibration		Lebanon Community Hospital
1717	Baldwin	Syracuse University	Ar/Ar Dating	Ar/Ar Dating	Syracuse University
1718	Armstrong	California State University at Fullerton	Fission Track Dating	Fission track age dating of apatite grains .	Department of Geological Sciences
1719	Teaching and Tours	Portland Community College	Upward Bound	OSTR Tour for Upward Bound	NA
1720	Teaching and Tours	Saturday Academy	OSTR Tour	OSTR Tour	NA
1726	Teaching and Tours	Oregon State University - Educational Tours	Academic Learning Services	Cohort Class 199	NA
1730	Reese	Oregon State University	Neutron Radiography	Neutron Radiography using the real-time and film imaging methods	NA
1739	Teaching and Tours	Daly Middle School	Reactor Tour	Reactor Tour	NA
1743	Teaching and Tours	West Salem High School	Reactor Tour	Reactor Tour	NA
1745	Girdner	US National Parks Service	C14 Measurements	LSC analysis of samples for C14 measurements.	US National Parks Service

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1747	Teaching and Tours	East Linn Christian Academy	Reactor Tour	Reactor Tour for Chemistry Class	NA
1758	Teaching and Tours	Oregon State University - Educational Tours	Kids Spirit	OSTR tour	NA
1765	Beaver	Weyerhaeuser	Instrument Calibration	Calibration of radiological instruments.	Weyerhaeuser Foster
1768	Bringman	Brush-Wellman	Antimony Source Production	Production of Sb-124 sources	Brush-Wellman
1771	Otjen	Oregon State Fire Marshal	Instrument calibration	Calibration of radiological response kits	Oregon State Fire Marshall
1777	Storey	Quaternary Dating Laboratory	Quaternary Dating	Production of Ar-39 from K-39 to determine radiometric ages of geological materials.	Quaternary Dating Laboratory
1779	Teaching and Tours	Lebanon High School	Teaching and tours	OSTR tour.	NA
1783	Amrhein	Amrhein Associates, Inc	Instrument Calibration	Instrument calibration	Amrhein Associates, Inc.
1790	Teaching and Tours	Oregon State University - Educational Tours	OSTR Tour	OSTR Tour	NA
1791	Teaching and Tours	Oregon State University - Educational Tours	OSTR Tour	RX Tour	NA
1794	O'Kain	Knife River	Instrument Calibration	Instrument calibration	Tangent Construction
1795	Zubek	Eugene Sand & Gravel, Inc.	Instrument Calibration	Instrument calibration	Eugene Sand & Gravel, Inc.
1796	Hardy	CH2M Hill, Inc.	Instrument Calibration	Instrument calibration	CH2M Hill, Inc.
1797	Teaching and Tours	Oregon State University - Educational Tours	OSTR Tour	OSTR Tour	NA
1816	Kounov	Geologisch-Palaontologisches Institut	Fission Track Analysis	Geochronology analysis using fission track dating.	Geologisch-Palaontologisches Institut
1817	Costigan	City of Gresham	Instrument Calibration	Calibration of instruments	City of Gresham

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1818	Sabey	Brush Wellman	Antimony source production (Utah)		Brush-Wellman
1819	Vetter	University of California at Berkeley	NE-104A INAA source	Stainless Steel disk source for INAA lab.	University of California at Berkeley
1820	Jolivet	Universite Montpellier II	Fission Track Analysis	Use of fission track analysis for geochronology.	University of Montpellier II
1823	Harper	Oregon State University	Evaluation of Au nanoparticle uptake	INAA of gold concentrations in zebrafish embryos to evaluate nanoparticle uptake.	OSU Environmental Health Sciences Center
1824	Kounov	University of Basel	Fission Track Analysis	Low temperature thermochronology is being used to answer questions relating in general to tectonics and basin analysis. The current project covers studies in Madagascar, southern India, Sri Lanka where they are trying to understand what happened to the	Geologisches Institut, ETH Zentrum
1826	Teaching and Tours	North Eugene High School		OSTR Tour and half-life experiment	NA
1827	Teaching and Tours	Stayton High School	OSTR Tour and half-life experiment	OSTR Tour and half-life experiment	NA
1828	Teaching and Tours	Lincoln High School	OSTR Tour and half-life experiment	OSTR Tour and half-life experiment	NA
1831	Thomson	University of Arizona	Fission Track	Fission track thermochronometry of the Patagonian Andes and the Northern Apennines, Italy	Yale University
1840	Burgess	University of Manchester	Ar/Ar Dating	Production of Ar-39 from K-39 for Ar-40/Ar-39 dating of geological samples	University of Manchester
1841	Swindle	University of Arizona	Ar/Ar dating of ordinary chondritic meteorites	Ar/Ar dating of ordinary chondritic meteorites	University of Arizona
1843	Fletcher	Empiricos LLC	Instrument Calibration	Instrument calibration	Empiricos LLC
1847	Higley	Oregon State University	Ultra-trace uptake studies for allometric studies	NAA of ultra-trace elements in plant samples for application in allometric studies	NERHP CRESP Grant
1848	Hartman	University of Michigan	Development of Prompt Gamma Neutron Activation Analysis at the OSTR	Development of a PGNAA beam line on beam port #4.	NA
1852	McGuire	Oregon State University	Antimicrobial activity of silanized silica microspheres with covalently attached PEO-PPO-PEO	co-polymer and nisin association. The project is aimed at finding effective methods for coating surfaces to enhance protein repellent activity and antimicrobial activity using nisin.	Chemical, Biological & Env Engineering



**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1853	Ivestor	Grande Ronde Hospital	Instrument Calibration	Instrument calibration	Grande Ronde Hospital
1855	Anczkiewicz	Polish Academy of Sciences	Fission Track Services	Verification of AFT data for illite-mechte data	Polish Academy of Sciences
1858	Arbogast	Gene Tools, LLC	Instrument Calibration	Calibration of instruments	Gene Tools, LLC
1861	Page	Lund University	Lund University Geochronology	Ar/Ar Geochronology	Lund University
1864	Gans	University of California at Santa Barbara	Ar-40/Ar-39 Sample Dating	Production of Ar-39 from K-40 to determine radiometric ages of geologic samples.	University of California at Santa Barbara
1865	Carrapa	University of Wyoming	Fission Track Irradiations	Apatite fission track to reveal the exhumation history of rocks from the ID-WY-UY position of the Sevier fold and thrust belt, Nepal, and Argentina.	University of Wyoming
1872	Hartman	University of Michigan	Evaluation of Borohydride Compounds Using PGNAA	Utilization of PGNAA to evaluate the material content of various borohydride compounds.	University of Michigan
1873	Hines	Washington State University	Fission Chamber Refurbishment	Refurbishment of a fission chamber for transfer and use at Washington State University	Washington State University
1875	Hosmer	102nd Oregon Civil Support Unit	Instrument Calibration	Calibration of instruments	102nd Oregon Civil Support Unit
1876	Reese	Oregon State University	Utilization of the Prompt Gamma Neutron Activation Analysis Facility	Development and utilization of the Prompt Gamma Neutron Activation Analysis Facility for use as a user facility	NA
1878	Roden-Tice	Plattsburgh State University	Fission-track research	Use of fission tracks to determine location of $^{235}\text{U}$ , $^{232}\text{Th}$ in natural rocks and minerals	Plattsburgh State University
1880	Merrill	Oregon State University	Selenium, Thioredoxin Reductase and Cancer	Determine whether deletion of the gene encoding thioredoxin reductase in liver 1)increases or decreases the rate of liver cancer, 2)impacts the cancer-preventive activity of dietary selenium, 3)effects the pathways by which cells protect themselves from oxidative stress and cancer	OSU Biochemistry & Biophysics
1882	Bray	Wayne State University	INAA of Archaeological Ceramics from South America	Trace-element analysis of Inca-period ceramics for provenance determination	Wayne State University
1886	Coutand	Dalhousie University	Fission Track Irradiation	Fission track irradiations of apatite samples	Dalhousie University
1887	Farsoni	Oregon State University	Xenon Gas Production	Production of xenon gas	OSU NERHP

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Preformed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1888	Misner	Pacific Northwest National Laboratory	Detection of short-lived fission products	Utilization fo the PGNAA fast shutter to observe short-lived fission products	Pacific Northwest National Laboratory
1889	Paulenova	Oregon State University	Hydrolysis and Radiolysis of synergistic extractants	The goal of this project is to determine the effects of hydrolysis and radiolysis on the extraction ability of a diamide and chlorinated cobalt dicarbollide (CCD). CCD and the diamide are synergistic extractants and will be together in solution for hydrolysis and radiolysis experiments. Effects will be measured with IR spectroscopy and extraction distribution ratios	NA
1890	Price	Boeing	Neutron Radiography of Electronic Components	Utilizazation of neutron radiography to examine various electronic componentents to detect manufacturing defects	Boeing
1891	Reese	Oregon State University	Development of a Neutron Depth Profiling Instrument	Development and use of a Neutron Depth Profiling instrument in conjunction with PGNAA facility	NA
1893	Mueller	University of Oregon	Soil Sterilization	Sterilization of soils to remove microorganisms (i.e., fungi) without altering abiotic conditions	University of Oregon
1894	Greene	University of Chicago	INAA of Late Bronze-Age Ceramics, Armenia	Trace-element analyses of ceramics from Tsaghkahovit, Armenia, to determine provenance	University of Chicago
1895	Filip	Academy of Sciences of the Czech Republic	Bojemian Massif	Fission-track dating	Academy of Sciences of the Czech Republic
1896	Hamby	Oregon State University	Beta Source Creation Through Activation	Activation of various materials for beta radiation sources used in the development of beta spectroscopy instrumentation	OSU NERHP
1897	Loveland	Oregon State University	Testing of Stern Gerlach apparatus	Prepare 86Rb tracer to test Stern Gerlach apparatus.	NA
1898	Fayon	University of Minnesota	Fission Track Services	Use of fission tracks to determine location of 235U, 232Th in natural rocks and minerals.	University of Minnesota
1899	Loveland	Oregon State University	Target Production	Production of actinide targets for used in neutron beams	NA
1900	Keiluweit	Oregon State University	Manganese chemistry and lignin decomposition	We used an artificial soil media (clay minerals, glass beads, manganese oxides) for our experiments. This artificial soil needs to be sterile for our experiments to succeed.	OSU Crop and Soil Science
1901	Emberling	Oriental Institute of Chicago	The Uruk Expansion	INAA of ceramics from Mesopotamia and adjacent areas.	OSU Radiation Center, Minc

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1902	Groom	University College of London	Tepe Yanik	INAA of ancient ceramics from Tepe Yanik, Iran.	OSU Radiation Center, Minc
1903	Napier	Pacific Northwest National Laboratory	INAA of Fruits and Soils	Trace-element analysis to determine values for food-chain pathway.	Pacific Northwest National Laboratory
1904	Minc	Oregon State University	INAA of Archaeological Ceramics from Ecuador	Trace-element analyses of ceramics from Ecuador for provenance determination.	NA
1905	Fellin	ETH Zurich	Fission Track Analysis	Use of fission tracks to determine location of $^{235}\text{U}$ , $^{232}\text{Th}$ in natural rocks and minerals.	Geologisches Institut, ETH Zurich
1906	Torgeson	Yaquina River Constructors	Instrument Calibration	Instrument calibration.	Yaquina River Constructors
1907	Tanguay	Oregon State University	Nanoparticle Uptake in Zebrafish Embryos	INAA to determine the uptake by zebrafish embryos of various metals in nanoparticle form.	OSU Environmental and Molecular Toxicology
1908	Colwell	Oregon State University	Sterilization of Basalt Core using Gamma Irradiation	Six (6) basalt cores approximately 6" in height and approximately 2" in diameter will be sterilized using a Co-60 source in order to prepare the cores for microbial incubation experiments. Each core will be individually wrapped in aluminum foil and dupl	OSU COAS
1909	Hamby	Oregon State University	Use of Batteries as Activation Detectors	Use of Li-ion batteries as activation detectors by looking at activation of metals in the the battery.	NA
1910	Maynard	U.S. EPA	Soil Manganese Redox Cycling in Suboxic Zones: Effects on Soil Carbon Stability	Suboxic soil environments contain a disproportionately higher concentration of highly reactive free radicals relative to the surrounding soil matrix, which may have significant implications for soil organic matter cycling and stabilization. This project e	U.S. EPA
1911	Alden	University of Michigan	INAA of Ancient Iranian Ceramics	Trace-element analysis of ceramic from ancient Iran to monitor trade.	National Science Foundation
1912	Thornton	University of Pennsylvania	INAA of Ancient Iranian Ceramics	Trace-element analyses of archaeological ceramics from Iran.	National Science Foundation
1913	Reese	Oregon State University	Fission Yield Determination Using Gamma Spectroscopy	Use of neutron activation to determine fission yields for various fissile and fertile materials using gamma spectroscopy	NA
1914	Barfod	Scottish Universities Environmental Research Centre	Ar/Ar Age Dating	Ar/Ar age dating.	Scottish Universities Research and Reactor Centre
1915	Peoples	Bartlett Nuclear	QA of Contamination Surveys	Use of gas flow proportional counter to measure gross alpha/beta on contamination survey swipes as part of an independent QA procedure	Bartlett Nuclear

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1917	Hosmer	102nd Oregon Civil Support Unit	Sample counting	Counting different media with different instruments to determine isotopic composition.	NA
1918	Jander	Oregon State University	Radiation effects on Magnetic Tunnelling Junction devices	This project is to study the changes of the structural and electrical properties of Magnetic Tunneling junction exposing in gamma radiation.	Electrical Engineering and Computer Science
1919	Baker	Lake District Hospital	Instrument Calibration	Instrument Calibration	Lake District Hospital
1921	Fear	City of Salem	Instrument Calibration	Instrument Calibration	City of Salem
1922	Hallmark	Coos County Public Health	Instrument Calibration	Instrument Calibration	Coos County Public Health
1923	McAllister	NETL	Instrument Calibration	Instrument Calibration	NETL
1924	Hartman	University of Michigan	Lithium Content Determination using PGNAA	Use of PGNAA to determine lithium content in various chemical combinations	NA
1925	Macnab	Allied Waste	Instrument Calibration	Instrument Calibration	Allied Waste
1926	Hartman	University of Michigan	PGNAA Utilization	Use of PGNAA to determine elemental composition of various materials.	NA
1928	Schleifer	Mushka Dairy	Dairy/Vegetation Radionuclide Detection	Determination if contamination of dairy/vegetation from radionuclides exists.	NA
1929	Farsoni	Oregon State University	Source Activation	Irradiation of different materials to make sources for detection experiments.	NA
1930	Brown	University of Glasgow	Fission Track Irradiation	Use of fission tracks to determine location of <sup>235</sup> U, <sup>232</sup> Th in natural rocks and minerals.	University of Glasgow
1931	Emori	Nunhems USA, Inc.	Pollen Sterilization	Irradiation by gamma radiation will make sterile pollen which can be used on female flowers to produce fruit with haploid embryos in some of the seed.	Nunhems USA Inc.
1932	Yilma	Oregon State University	Induced mutation and in vitro techniques as a method to screen drought tolerance in potatoes	Gamma rays and chemical mutagens will be used to induce variation in shoot -tips culture of selected potato varieties for further evaluation.	OSU Crop and Soil Science
1933	Loveland	Oregon State University	Pt radiochemistry	Production of tracer for testing chemical separation of Pt from Pb	
1934	Denardo	ATI Allegheny	Neutron Absorber Qualification	Determination of transmission factor for qualification of boron based metallic neutron absorber.	
1935	Higley	Oregon State University	Fukushima Detection and Analysis	Efficiency and calibration of detectors relating to samples in and around the Fukushima reactors.	OSU NERHP
1936	Hicks	Clair Company	Instrument Calibration	Instrument Calibration	Clair Company
1940	Mutin	Benjamin Mutin	INAA of ceramics from ancient Shahr-I Sokhta, Iran	Trace-element analysis of ceramics from the site of Shahr-I Sokhta, to investigate interregional exchange systems.	OSU Radiation Center, Minc

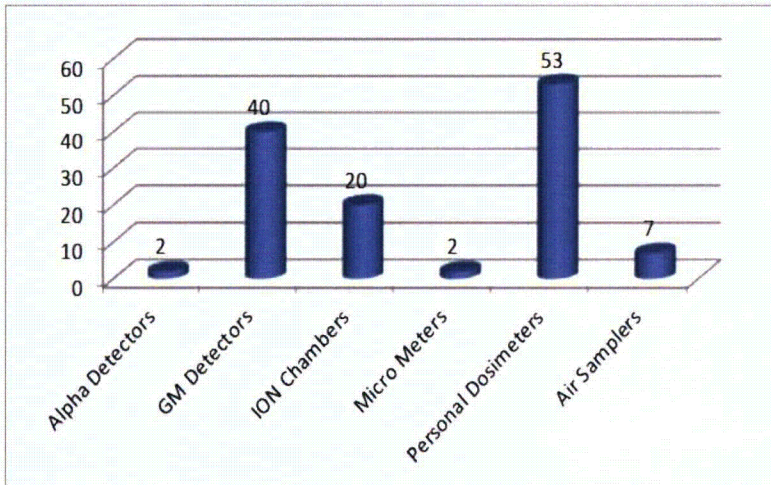
**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1941	Wright	University of Michigan	INAA of ceramics from ancient Jebel Aruda, Syria	Trace-element analyses of ceramics from the site of Jebel Aruda, Syria to investigate interregional exchange.	OSU Radiation Center, Minc
1943	Patel	JP Laboratories, Inc	Dosimetry Card Sensitivity	Determine the neutron and gamma sensitivity of dosimetry cards.	JP Laboratories, Inc.
1944	Jander	Oregon State University	Neutron Effects on Magnetic Tunneling Junction	Neutron Effects on Magnetic Tunneling Junction	
1945	Estell	Lonza	Deodorant screening project	This project uses pig skin as a model for human skin in our screening of potential deodorant actives.	Lonza
1946	Carpenter	Pacific Analytical Laboratory	For Carnation-Leaf Agar Medium Fusarium ID Project	Irradiation of carnation leaves to kill fungal spores.	Pacific Analytical Laboratory
1947	Sane	Lonza	Deodorant Screening Project	This project uses pig skin as a model for human skin in our screening of potential deodorant actives.	Lonza
1948	Trappe	Oregon State University	Bioaccumulation by PNW Fungi	Passive gamma counting of activity in mushrooms and associated soils from the PNW.	
1949	Reichel	Royal Ontario Museum	INAA of Ceramics from Godin Tepe, Iran	Trace-element analyses of ancient ceramics from Iran using INAA.	NSF Collaborative Research Project
1950	Yanchar	Oregon State University	INAA of Ecuadorian Ceramics	Trace-element analyses of ceramics from N. highland Ecuador.	
1951	Brennan	Agate Engineering, Inc.	Instrument Calibration	Instrument Calibration	Agate Engineering, Inc.
1952	Jahinuzzaman	Intel	Electronic Fault Irradiations	Determination of the neutron fluence necessary to cause faults in integrated circuits.	Intel Corporation
1953	Idleman	Lehigh University	Lehigh University Ar/Ar Dating	Lehigh has a geochronology lab for dating rock and mineral samples using the $^{40}\text{Ar}/^{39}\text{Ar}$ method, which has been in operation since about 1990. Fast neutron irradiation of these samples produces $^{40}\text{Ar}$ from $^{40}\text{K}$ and is an essential step in the $^{40}\text{Ar}/^{39}\text{Ar}$ dating	Lehigh University
1954	Iwaniec	Oregon State University	The Role of Leptin in Inflammation-driven Bone Loss	Inflammation contributes to the etiology of several common metabolic bone diseases, including arthritis, periodontal disease, and postmenopausal and senile osteoporosis. The proposed research will test the novel hypothesis that leptin (a hormone that act	Department of Nutrition and Exercise Sciences
1955	Higley	Oregon State University	Uptake of radionuclides in plants	Determine concentration ratios in plants.	OSU NERHP
1956	Jaqua	Portland State University	Instrument Calibration	Instrument Calibration	Portland State University

**Table VI.2 (continued)**  
**Listing of Major Research and Service Projects Performed or in Progress**  
**at the Radiation Center and Their Funding Agencies**

Project	Users	Organization Name	Project Title	Description	Funding
1957	Phillips	University of Melbourne	Radiometric age dating of geologic samples	Ar/Ar age dating.	University of Melbourne
1958	Minc	Oregon State University	INAA of Oaxaca Ceramics	Trace-element analyses of prehistoric ceramics from Oaxaca, Mexico, to determine provenance.	NSF Collaborative Research Project
1959	Mutin	Benjamin Mutin	Tepe Yahya	INAA of archaeological ceramics from Tepe Yahya, Iran.	NSF Collaborative Research Project
1960	Minc	Oregon State University	Nineveh	INAA of archaeological ceramics from the British Museum's collection from ancient Nineveh.	NSF Collaborative Research Project
1961	Cohen	NASA	Geochronology of Terrestrial and Extraterrestrial Samples	Age dating of Earth-based, lunar and meteorite samples.	University of Alabama at Huntsville
1962	Daeschel	Oregon State University	Antimicrobial activity of honey and coriander seeds.	We are conducting research on the antimicrobial activity of these foods and need to have them sterile without using heat.	OSU Horticulture
1963	Marcum	Oregon State University	Neutron Spectra Characterization	Various foils will be irradiated in different OSTR irradiation facilities in order to characterize the neutron spectra in the OSTR.	
1965	Webb	University of Vermont	Ar/Ar age dating	Irradiation with fast neutrons to produce Ar-39 from K-39 for Ar/Ar geochronology.	University of Vermont
1966	Macnab	Coffin Butte Landfill	Instrument Calibration	Instrument Calibration	Coffin Butte Landfill
1967	Evans	Feline Thyroid Clinic	Instrument Calibration	Instrument Calibration	Feline Thyroid Clinic
1969	Wilkes	James Wilkes	Radiation Contamination of Salmon	Determine if salmon is contaminated with Cs134/137.	
1972	Danisik	University of Waikato	Fission Track dating	Fission track dating of apatite samples from China in order to investigate exhumation history of ultra high pressure rocks in Dabie-Shan region.	University of Waikato

**Figure VI.1**  
**Summary of the Types of Radiological Instrumentation Calibrated to Support the OSU TRIGA Reactor and Radiation Center**



**Table VI.3**  
**Summary of Radiological Instrumentation Calibrated to Support OSU Departments**

OSU Department	Number of Calibrations
Animal Science	2
Biochem/Biophysics	4
Botany	6
Chemistry	1
Civil and Construction Engineering	2
COAS	3
Environmental & Molecular Toxicology	3
Environmental Engineering	1
Linus Pauling Institute	2
Microbiology	2
Nutrition & Exercise Science	3
Pharmacy	3
Physics	5
Radiation Safety Office	36
Veterinary Medicine	10
<b>Total</b>	<b>83</b>

**Table VI.4**  
**Summary of Radiological Instrumentation**  
**Calibrated to Support Other Agencies**

Agency	Number of Calibrations
Agate Engineering	1
Allied Waste	1
CH2MHill	2
City of Salem	2
Clair Company	1
Doug Evans, DVM	2
ESCO Corporation	6
Eugene Sand & Gravel	1
Evanite Fiber Corp.	1
FAA	5
Fire Marshall	37
Gene Tools	3
Grand Ronde Hospital	5
Health Division	116
Knife River	4
Lebanon Community Hospital	6
NETL	7
Occupational Health Lab	7
ODOE/ Hazmat	23
ODOT	10
Oregon Health Sciences University	33
PSU	15
Rogue Community College	1
Samaritan Hospital	9
Siga Technologies	2
VDIC	2
Weyerhaeuser	1
<b>Total</b>	<b>303</b>



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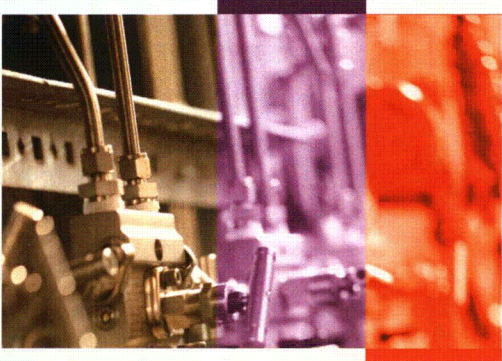
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## Students

- A. Alhawsawi (RHP/PhD candidate).
- Ada Castelluccio: "Thermo-tectonic evolution of the Carpathian chain". PhD project at the University of Padova. Advisor: Prof. Massimiliano Zattin.
- Alan Greene, Ph.D. Student advised by Dr. Adam T. Smith.
- Alejandro Bande (PhD expected in 2013): Constraining deformation history of the Talas-Fergana strike-slip fault and kinematically-linked thrust faults, Kyrgyz Republic. Advisor: Dr. E. Sobel
- Allison Gicking (K. S. Krane, advisor): "Neutron Capture Cross Sections of Cd Isotopes" BS in Physics (June 2012).
- Anke Deeken (PhD expected in 2012): Long-term erosion and exhumation rates across different climatic zones in the Indian NW Himalaya. Advisor: Prof. M. Strecker.
- B. Alemayehu (RHP/PhD candidate).
- B.M. Carlson, 2012, Analysis of detrital zircon fission track ages of the Upper Cretaceous Valdez Group and Paleogene Orca Group in Western Prince William Sound, Alaska, unpublished BSc thesis, Union College, Schenectady NY, 116 p.
- Benedetta Andreucci: "Thermochronology of Outer Carpathians". PhD project at the University of Padova. Advisor: Prof. Massimiliano Zattin
- Brian Devlin (K. S. Krane, advisor): "Neutron Capture Cross Sections of Hg Isotopes" BS in Physics (expected 2012).
- Chong Ma (Ph.D. candidate) Thermotectonics of the Alleghanian Orogeny in the Southern Appalachians.
- Clare Tochilin (University of Arizona) – Advisor: Peter Reiners, George Gehrels, Stuart Thomson, MS Thesis Title: Detrital apatite and zircon triple dating (U-Pb, Fission Track, and (U-Th)/He) from offshore East Antarctica (completed).
- Clay Painter (University of Arizona) – Advisor: Barbara Carrapa, MS Thesis Title: Thermochronology of Upper Cretaceous and Paleocene deposits in the central Cordilleran foreland basin.
- Corrie Black (in RHP): The investigation of dipicolinic acid diamide derivatives for the separation of actinides and lanthanides using solid phase extraction chromatography.

- Donato Pace: "Sedimentary provenance in the Victoria Land Basin (Antarctica)". PhD project at the University of Siena. Advisor: Prof. Franco Talarico.
- E.M Becker (RHP/MS).
- Euan Macaulay (PhD expected in early 2013): Has late Cenozoic climate change lead to enhanced erosion in the Kyrgyz and Chinese Tien Shan, Advisor: Dr. E. Sobel.
- Fariq Shazanee (University of Arizona) – Advisor: Barbara Carrapa, Undergraduate Senior, Thesis Title: Multi-geochronology analyses of Pamirs river detritus: insights into Pamir-Tibet connections.
- Giorgio Di Fiore: "Thermal modelling of the Simplon and Brenner regions". PhD project at the University of Bologna. Advisor: Prof. William Cavazza.
- Howard Dearmon (K. S. Krane, advisor): "Neutron Capture Cross Sections of Se Isotopes" BS in Physics (expected 2013).
- Irene Albino: "Tectonic effects of the Arabia-Europa collision". PhD project at the University of Bologna. Advisor: Prof. William Cavazza.
- Jeff Grell, Loveland, Synthesis of Heavy Nuclei by Multi-nucleon Transfer Reactions", Ph. D.
- Jonathan Gaylor, Ar/Ar dating and the integrated Cretaceous time scale; advisor: Xavier Quidelleur; Université Paris-Sud (France), PhD-student.
- Justen Dill, MS, CHE (advised by Joe McGuire). Quantifying nisin adsorption behavior at pendant polyethylene oxide brush layers. 2012.
- Keely Heintz, MS, CHE (advised by Joe McGuire). Synthesis and evaluation of PEO-coated materials for microchannel-based hemodialysis. 2012.
- Larry Yao, Loveland, "Survival probabilities in hot fusion reactions", Ph.D.
- Luca Malatesta, Master Student, Advisor: Sebastian Castelltort. Thesis title: Landscape evolution and lateral growth of the southwest Tian Shan, Uzbekistan.
- M. DeLuca, 2012-13, (BSc, Union College, Advisor: Garver) Fission track ages of detrital zircon of the Shumagin Formation, Nagai Island, Alaska; ongoing BSc Thesis, Union College, Schenectady NY.
- Marsha Lampi, HBS, BIOE (advised by Joe McGuire). Molecular origins of peptide entrapment within polyethylene oxide layers. 2012.
- Martin Precek (in Chemistry): The kinetic and radiolytic aspects of control of the redox speciation of neptunium in solutions of nitric acid.
- Mason Keck (K. S. Krane, advisor): "X-Ray Emissions in Measurements of the Neutron Capture Cross Sections for the Production of Hg-197 and Pt-197, and Scoping the Science Parameter Space of Future X-Ray Astrophysics Calorimeter Missions" Honors BS in Physics (June 2012).
- Nick Petersen (K. S. Krane, advisor): "Measuring Neutron Absorption Cross Sections and Epithermal Resonance Integrals of Natural Platinum via Neutron Activation Analysis" BS in Physics (June 2012).
- Pierre-Yves Filleaudeau, Ph.D. Student, Advisors: Olivier Lacombe and Frédéric Mouthereau, Thesis Title: Growth and denudation of the Pyrenees from Late Cretaceous to Paleogene: Basin analysis and detrital thermochronometry.
- Spencer Barrett, Loveland, "Tripartition of Heavy Nuclei", Ph. D.
- Supriyadi Sadi (in RHP): Microstructure of radiation damage in the uranium film and its backing materials irradiated with 136 MeV  $^{136}\text{Xe}+26$ .
- T. M. Izykowski., 2012. (MSc, University of South Carolina) Detrital zircon fission track ages sedimentary strata in Morocco.
- Vanessa Holfeltz (in RHP): An investigation of chitosan for sorption of radionuclides.
- William S. Cassata, PhD (2012) "Argon diffusion in feldspars". Paul Renne, advisor (Univ. California, Berkeley).
- Xiuxi Wang: "Tianshui-Huicheng Basin's response to the Cenozoic tectonic evolution of Northeast Tibetan Plateau and the relation with the uplift of west Qinling". PhD project of the Lanzhou University (China).

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