7TH ANNUAL GSU Student Research Conference
Governors State University
Wednesday, May 23, 2001
9 a.m.-5 p.m.
Proceedings of the 7th Annual GSU Student Research Conference

Governors State University
University Park, IL 60466

May 23, 2001

Editor: Shelly Kumar
Governors State University

College of Arts and Sciences
College of Business and Public Administration
College of Education
College of Health Profession
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May 2001

Dear Student Researcher:

Welcome to the Seventh Annual Governors State University Research Conference. Thank you for sharing the results of your research with the GSU community.

Scholarship encompasses many types of research: the basic research of discovery, applied research, pedagogical research, and integrative research. The projects reported on in the Conference include all of these. The common thread is the creation of new knowledge.

Congratulations to you and to the faculty who have taught you. We are proud to have you as members of the GSU community.

Thank you for taking part in research—in the adventure of creating new knowledge.

Sincerely,

Stuart I. Fagan
President
The steering committee is pleased to announce the 7th Annual GSU Student Research Conference to be held on May 23, 2001. In the past six conferences, the quality of the presentations were at par with presentations at any professional conferences. This conference has become a tradition in excellence, and we are confident that today again we will witness another session of quality presentations by our students. This conference will be presented in its original format and with its original objectives:

1. To provide students an opportunity to present their research work before an audience of their peers, and to use the comments they receive to improve presentations made at professional conferences.

2. To provide a forum to highlight research accomplishments at GSU, and honor students presenting their research work.

3. To generate enthusiasm among student body in general, and encourage them to pursue research and other scholarly activities.

4. To enhance communications in the area of research among the four colleges at GSU. The interactions may also lead to collaborative work among students and faculty of different colleges.

5. To enhance the image of GSU in the area of teaching, as research is considered integral part of teaching at the university level. In the long run larger number of students attracted toward research would enroll at GSU to pursue higher education.

The committee hopes that you will enjoy the conference, that you share in the excitement of doing research, and that you will look forward to participating in the future students and professional conferences.
The Student Research Conference Steering Committee is proud to announce that the keynote speaker for the lunch will be:

Dr. Pierre LeBreton
Professor of Chemistry
University of Illinois at Chicago

Pierre LeBreton was raised and went to Archbishop Curley High School in Miami, Florida. He received a Bachelor of Science degree in Chemistry from the University of Chicago in 1964. At the University of Chicago he worked in the Ben May Institute for Cancer Research as a technician under the supervision of organic chemists investigating strategies for the synthesis of potent carcinogens for use in cancer research. While at the U. of C., he also did undergraduate research at the James Franck Institute investigating the low-temperature spectroscopy of single crystal organic molecules. At graduation he received the annual Outstanding Undergraduate Chemist Award from the American Institute of Chemists. In 1996 he received an M.A. in Chemistry, and in 1970 a Ph.D. in Chemical Physics from Harvard University. His graduate research focused on the gas-phase kinetics of simple chemical reactions like $H + Cl_2 \rightarrow HCl + Cl$. As a graduate student, he was mentored by Dudley Hershbach and Yuan Lee who, in 1986, shared a Nobel Prize for their pioneering work in chemical dynamics. After graduating from Harvard, he studied as a Postdoctoral Fellow in Germany at the Physics Institute of the University of Freiburg, and later at the Jet Propulsion Laboratory and the California Institute of Technology. Both in Germany and in California he continued his research of gas-phase dynamics of atoms, ions and molecules.

In 1973, Dr. LeBreton joined the Chemistry Department of the University of Illinois at Chicago as an Assistant Professor. At that time his research changed direction. He became interested in the physical chemistry of biological molecules and began examining mechanisms that cause DNA damage and that are important in biochemical steps that result in cancer. One part of his research examines DNA damage that is caused by high energy UV radiation. Another part focuses on DNA damage by molecules that cause cancer. In 1978, he became an Associate Professor and, in 1987, a Full Professor at UIC. He has served on research peer review panels for the National Institutes of Health and for the Department of Energy. He also serves on the Board of Trustees of the Blowitz Ridgeway Foundation, a Chicago based foundation that supports nonprofit health providers and biomedical research. His most recent research is devoted to the development of computer-based methods that can be used to rapidly describe DNA reaction patterns associated with chemical carcinogens.
CANCER CAUSING DNA DAMAGE IN THE INTERIOR OF GUANINE RUNS

Dr. Pierre LeBreton

Department of Chemistry
University of Illinois at Chicago

ABSTRACT

Of the four DNA bases, guanine (G) has the most easily shared electrons, and is most susceptible to damage by UV radiation and by reaction with cancer causing chemicals that attack at the sites containing the most accessible electrons in DNA. A recent combined use of experimental spectroscopic methods and of computer-based theoretical methods has provided new information about the electronic properties of guanine. This information is available both for isolated guanine molecules and for guanine molecules in different DNA sequences. Results of this spectroscopic and computer investigation indicate that when guanine is flanked by other guanines, in sequences of the type ...GGG..., its electrons are more accessible than when it is flanked by other DNA bases. Furthermore, in these reactive sequences, called G runs, the electrons on guanine molecules in the middle are more accessible than electrons on guanine molecules on the ends. The description of electron accessibility in guanine in different DNA sequences that this investigation provides, correlates with observed DNA damage caused by laser radiation and by several widely studied cancer causing chemicals.
PROGRAM SUMMARY

Engbretson Hall:
8:30 A.M. - 9:00 A.M. Conference Registration
9:00 A.M. - 9:20 A.M. Welcome and Introduction
9:20 A.M. - 10:20 A.M. Podium Presentations
10:20 A.M. - 10:40 A.M. Refreshment Break
10:40 A.M. - 11:00 Noon Podium Presentations

Hall of Governors:
12:00 Noon - 12:55 P.M. Lunch

Engbretson Hall:
12:55 P.M. - 1:00 P.M. Greetings and Introduction of Speaker
1:00 P.M. - 1:30 P.M. Keynote Speaker, Dr. Pierre LeBreton

Hall of Governors:
1:30 P.M. - 2:00 P.M. Poster Presentations and Mixer

Engbretson Hall:
2:00 P.M. - 2:20 P.M. Certificates Presentation to Student Participants
2:20 P.M. - 3:20 P.M. Podium Presentations
3:20 P.M. - 3:40 P.M. Refreshment Break
3:40 P.M. - 4:40 P.M. Podium Presentations
4:40 P.M. - 4:45 P.M. Concluding Remarks
CONFERENCE PROGRAM

Conference Registration
8:30 A.M.  Hall of Governors

Program Commencement
9:00 A.M.  Engbretson Hall

Welcome and Introduction:
Dr. Shelly Kumar
Division of Science
College of Arts and Sciences

Greetings:
Dr. Paul Keys, Provost

Podium Presentations
Engbretson Hall

Session I Moderator:
Ms. Cynthia Carr
Division of Nursing and Health Sciences
College of Health Professions


9:40 A.M.  "FOCUS GROUP RESEARCH FOR SCHOOL DISTRICT 228 ON PRE-PUBLICATION ANALYSIS OF WRITING HANDBOOK", Karen Wegrzyn, Brian Motykowski, and Charles Olson*, Business Administration, Division of Marketing, CBPA. p 15.


10:20 A.M.  Refreshment Break

Session II Moderator:
Dr. Albert Tuskenis
Division of Psychology and Counseling
College of Education

10:40 A.M.  "GC/MS STUDY OF ETHYL CHLOROFORMATE DERIVATIVES OF AMINO ACIDS", Martin J. Kurek, Joyce Mohberg, and Joseph Addison*, Analytical Chemistry Division of Science, CAS. p 17.
11:00 A.M. “MAKING A DIFFERENCE: OCCUPATIONAL THERAPY AND THE COLLEGE LEARNING ENVIRONMENT”, Sunny Harries, Cheryl Widstrand, and Elizabeth Cada *, Occupational Therapy, CHP. p 18.


Conference Lunch
Hall of Governors and Engbretson Hall

Lunch

Greetings and Introduction of Speaker:
Dr. Paul Keys

Keynote Speaker
Dr. Pierre LeBreton
Department of Chemistry
University of Illinois at Chicago

Speaking on
“Cancer Causing DNA Damage in the Interior of Guanine Runs”

Poster Presentations and Mixer
Hall of Governors


Certificates Presentation
Engbretson Hall
2:00 P.M.
Dr. Paul Keys, Provost

Podium Presentations
Engbretson Hall

Session III Moderator:
Dr. Frances Kostarelos
Division of Liberal Arts
College of Arts and Sciences

2:20 P.M. "GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) ANALYSIS OF AMINO ACID DERIVATIVES", Mavis Y. Williams, and Joseph Addison*, Analytical Chemistry, Division of Science, CAS. p 21.

2:40 P.M. "JAZZ DOCUMENTARY IN CHICAGO 2001", Nami Ogata and Paul Schranz*, Art, Division of Liberal Arts, CAS. p 22.

3:00 P.M. "THERMAL REACTIONS OF RHENIUMTETRAHYDRIDOBI-TRIPHENYLPHOSPHINE [REH,(PPH3)2] " Elena Hadjianastassova and Gregory A. Moehring*, Analytical Chemistry, Division of Science, CAS. p 23.

3:20 P.M. Refreshment Break

Session IV Moderator:
Dr. Akkanad Issac
Division of Management, Marketing, and Public Administration
College of Business and Public Administration


4:00 P.M. "TRADE AREA ANALYSIS", Jaime Bacher and Charles Olson*, Business Administration, Marketing, CBPA. p 25.


4:40 P.M. Concluding Remarks
Dr. Shelly Kumar
ABSTRACTS OF PAPERS

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Governors State University
University Park, Illinois
PODIUM PRESENTATIONS
INFORMATION ACCESS FOR INDIVIDUALS WITH VISUAL IMPAIRMENTS:
A STUDY OF THE GOVERNORS STATE UNIVERSITY WEB SITE

Erin Forbes, Elaine Naranjo, and Jessica Presperin-Pedersen*

Occupational Therapy
COLLEGE OF HEALTH PROFESSIONS

ABSTRACT

Accessibility of the Internet is an important issue. As our society becomes more dependent
upon computers and the Internet for information, individuals with disabilities such as vision
impairments may have limited access to information on the World Wide Web. Many web sites
are not designed to be accessible. Approximately 4% of the U.S. population have visual
impairments; a significant number of these individuals may have limited access to Internet
information. Universities use web sites as important information resources and the Governors
State University web site must be accessible for students and the community. New legislation
addresses accessibility for electronic and information technology. Standards established under
Section 508 of the Rehabilitation Act address information accessibility in the federal sector.
Institutions that proactively address web site design issues will be prepared for mandates that
affect their information accessibility. The purpose of this study is to determine the accessibility
for people with visual impairments of the GSU web site. Tools utilized for GSU web site
accessibility analysis will be the BOBBY 3.2 program developed by CAST, the Priority
Checklist designed by the World Wide Web Consortium, and the IBM Homepage Reader.
Results from this study have led to the identification of accessibility issues that exist on the
Governors State University web site. Recommendations for ensuring the accessibility of the
GSU web site will be made.
FOCUS GROUP RESEARCH FOR SCHOOL DISTRICT 228 ON PRE-PUBLICATION ANALYSIS OF WRITING HANDBOOK

Karen Wegrzyn, Brian Motykowski, and Charles Olson*

Business Administration
Division of Marketing, CBPA

ABSTRACT

This research project originated with Mr. David Corbin, Business and Technology Supervisor for School District 228, who contacted Governors State University requesting assistance in determining how to increase utilization of a writing handbook that was in the pre-publication phase of development. The District had developed a Writing Handbook for student use to foster consistency in writing abilities across the District and to conform to the State of Illinois standards in writing requirements. The Writing Handbook was a result of a need to update and refine a writing product that had been developed in 1989 and was not being fully utilized by students or faculty throughout the District. In the pre-publication stage of the new product, the District wanted to determine how to foster increased utilization of the product prior to final editing and publication.

The focus group method of research was selected for this exploratory research project. The research proposal presented Mr. Corbin with recommendations concerning the research problem, research objectives, specific questions to assist the moderators with proper flow of the session, and explicit details concerning the composition of the group. The presentation of this research project provides a detailed description of the results of the focus group session, and the recommendations made to District 228 on improving utilization of the Writing Handbook.
KANO TANGEN MANUSCRIPT: A CLANDESTINE EXPLORATION OF THE
XIN RIVER IN JIANGXI PROVINCE, CHINA CIRCA 1719

Gerald M. Torrence and Arthur Bourgeois*

Art History
Division of Art, CAS

ABSTRACT

The purpose of this study is to assign an attribution, authorship, and purpose to a Japanese horizontal scroll entitled Eight Aerial Views of Lakes and Rivers drawn by Kano Tangen. Though the title and painter are listed on the title slip, the presence of Kano Tangen in Southeast China is problematical and contradicted by the Mutual Seclusion policies of both China and Japan during the Kang Xi period (1662-1722) and the Tokugawa period (1615-1868). These governmental policies forbade the travel of either country’s citizenry to the other’s shores under penalty of death. To counter the claim that the scroll is an apocryphal hoax that places the artist outside his homeland, the questions of authenticity and authorship must be addressed, as well as a reasonable explanation offered as to why Kano Tangen would risk death to paint an inland river system in Jiangxi, China, when he could have just as profitably painted landscape scrolls in his homeland.

A determination of the time period when Kano Tangen used the two red seals affixed at the end of Eight Aerial Views of Lakes and Rivers (Plates 13, 14a) is undertaken so relevant historical, political, and economic events can be correlated with the scenery and text of the scroll. Appendices II and IV, letters from Takeo Yamanishi of the Kagoshima Museum and Timothy Clark of the British National Museum, respectively, establish a time line. Equally important, the location of the painting is established by Appendices I and III, the Robert Lee translation and the Chuimei Ho letter. These appendices form a body of evidence that proves Kano Tangen journeyed clandestinely to Shangrao, Jiangxi, China, in 1719-1720. He did so with the intention of mapping out the riverine waterways of the Xin River from Shangrao, Jiangxi, to Changshan, Zhejiang, at the behest of Yoshitaka Shimazu, Lord of Satsuma.
GC/MS STUDY OF ETHYL CHLOROFORMATE DERIVATIVES OF AMINO ACIDS

Martin J. Kurek, Joyce Mohberg, and Joseph Addison*

Analytical Chemistry
Division of Science, CAS

ABSTRACT

There are literally hundreds of different methods to derivatize amino acids for analysis by gas chromatography. Many of the methods adopted such as the N(O)-perfluoracyl methyl, isopropyl, and n-propyl ester derivatives of amino acids, require laborious multi-step processes: complete removal of the water and excess alcohol from the sample, ester-fication and acylation with heating, and removal of excess reagents. These processes take at least 1 hour in total to perform and prevent speeding up of the derivatization. Other derivatization procedures have been studied using isocyanates and phosgene as derivatizing reagents. However they require removal of water and because of their toxicity, are difficult to handle in the laboratory. A simple sample handling derivatization method using commonly used and inexpensive reagents, the ability to derivatize in an aqueous medium, and a very rapid reaction course proceeding at room temperature is studied. The objective of this study is to develop a GC/MS method to derivatize and identify amino acids in a standard mixture and in hard-shelled eggs. The amino acids will be derivatized using ethyl chloroformate to N-ethoxycarbonyl ethyl esters for analysis on a Varian GC/MS.
MAKING A DIFFERENCE: OCCUPATIONAL THERAPY AND THE COLLEGE LEARNING ENVIRONMENT

Sunny Harries, Cheryl Widstrand, and Elizabeth Cada*

Occupational Therapy
College of Health Profession

ABSTRACT

Few research studies have examined the impact of the sensory characteristics of the classroom environment on learning. The purpose of this study was to identify the following: (1) What are the students' perceptions of the classroom conditions regarding the lighting, temperature, and acoustics? (2) How have the sensory aspects of the university’s learning environment affected the student’s perceived ability to learn?, and (3) What recommendation would improve the learning environment? The investigators developed a survey instrument, which contained questions about classroom sensory conditions. The survey instrument was administered to selected students who attend classes in one wing of the university building. The results of this survey were analyzed to determine the frequency of responses to each question, identify repeated themes and concepts of the students’ perceptions of their classroom environment and its impact on learning process. The data was then utilized in the development of a final report of recommendations for Governors State University.
MIST (MANAGERS OF INFORMATION SYSTEM TECHNOLOGIES)

Mark Liszeo, Larry Freeman*

Education
College of Education

ABSTRACT

For the past five years Governors State University and Roosevelt University have been sponsoring the MIST (Managers of Information System Technologies) program, which brings computer technology into Chicago Public School classrooms. This program is designed to prepare university students to become technology managers in organizations such as schools, businesses, health and governmental agencies. Students will learn how to build computers, install and configure operating systems, other software, and peripherals along with developing and maintaining technology systems. This “hands on” training provides the beginning knowledge and skills that students need to be able to develop critical thinking and problem solving skills related to the technology typically used in these settings.

Computer technology is advancing so rapidly that it is not practical to provide the necessary training to keep all educators current with all new developments in the field. This program demonstrates the practicality of an alternative approach. Rather than attacking the daunting task of training the teachers in every school, university faculty recruit and train MIST managers to work with the computer systems and the teachers. By keeping the technology functional, MIST managers increase the amount of technology available to the students and free up more time for the teachers to concentrate on teaching.

This talk will present the pioneering effort of the MIST program and how it benefits all the parties involved.
CRAIC IN THE PUBLIC HOUSE: KEEPING ANGLO-IRISH WAR NATIONALISM ALIVE THROUGH TRADITIONAL AND FOLK MUSIC

Monica Posgay, and Arthur Bourgeois*

Integrative Studies
Division of Liberal Arts, CAS

ABSTRACT

This project examines the explicit and implicit usage of Anglo-Irish War nationalism in traditional and folk music as performed in Irish public houses. The music was used as a political vehicle to communicate Irish nationalism within a politically repressive environment before 1916 and in a divided nation afterwards. Nationalist influences of the music have generated global support for Irish unification.

This project gives an overview of Irish traditional and folk music forms and instrumentation as well as a history of Irish struggles that led to the rise of nationalism. A thesis that Anglo-Irish War nationalism is kept alive through traditional and folk music performed in the public houses is supported by six reasons: the public house as a location of socialization where political ideas are shared, establishment of the Gaelic League to promote Irish culture and solidarity, Ireland becomes isolated following the Anglo-Irish War, America retains feelings of mega Irish nationalism, music (traditional and folk) being used as a communication and expressionist medium worldwide, and that conflicts continue in Ireland for Home Rule was never fully established and tensions continue in Northern Ireland.

An ethnography examining Irish traditional and folk music performances in public houses in Chicago and Dublin/Ireland will analyze the presence of Anglo-Irish War nationalism in relation to the thesis question and reveal any potential conclusions.
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) ANALYSIS
OF AMINO ACID DERIVATIVES

Mavis Y. Williams, and Joseph Addison*

Analytical Chemistry
Division of Science, CAS

ABSTRACT

Eggshell strength has received considerable attention because shell breakage causes substantial
financial loss to the industry and ultimately to the consumer. As of now, little has been
published on the amino acid composition of these eggshell membranes and how that could be
related to the shell hardness.

The amino acid proteins of the shell membranes may be an important contributing factor to the
shell quality, because the shell acts as the front line of defense and the building block for
calcium deposition.

This study has three objectives: first, to develop an assay for determining amino acid
composition of egg-shell membranes by using gas chromatography/mass spectrometry
(GC/MS) to analyze trifluoroacetic acid (TFA) derivatives of amino acids from egg shell
membranes; second, to establish the amino acid profiles of hard-shell membrane, using
retention time data, as well as mass spectra data acquired with an ion-trap GC/MS instrument,
and third to establish a reference library of trifluoroacetic isopropyl ester derivatives of amino
acids for future work..

All 20 amino acids were separated from a mixture of derivatized standard solution, and 15
amino acids were identified to be present in a hard-shell membrane. The electron impact (e.i)
mass spectra obtained by the Varian Saturn ion trap GC/MS were of such high quality that, they
are added to the reference library database for future automated library searches.
JAZZ DOCUMENTARY IN CHICAGO 2001

Nami Ogata, and Paul Schranz*

Art
Division of Liberal Arts, CAS

ABSTRACT

Since jazz was born in U.S., its form and style has been changing but never died. The streams of the style are divided, run towards different directions, mixed with different style and growing in all over the world. But still Chicago is one of the most important cities when you talk about the jazz history. How is jazz in Chicago now? Since jazz in not about the redundance of the musical structures, but about the players' feelings, all the "Jazz" flies right after the moment they express their feelings. Players are creating jazz with their performance every night but the Chicago jazz in 2001 will never be the same. My documentary photography is trying to catch the jazz musicians at the moment of expression.
THERMAL REACTIONS OF RHENIUMTETRAHYDRIDOBISTRIPHENYLPHOSPHINE [REH₇(PPH₃)₂]

Elena Hadjianastassova and Gregory A. Moehring*

Analytical Chemistry
Division of Science, CAS

ABSTRACT

The thermal reactions of ReH₇(PPh₃)₂ were studied. This study was a follow-up to previous work, done at GSU, which found that ReH₇(PPh₃)₂ reacted with aldimines to form orthometalated rhenium polyhydride complexes, the first such stable complexes to exhibit sigma-bonding between an aromatic carbon center and a rhenium polyhydride center. The follow-up study, reported herein, was designed to further elucidate the reactions of ReH₇(PPh₃)₂ with aromatic and/or aldehyde containing organic molecules. One of the goals of this study was to better understand the thermal conversion of ReH₇(PPh₃)₂ into Re₂H₈(PPh₃)₄.

Thermal reactions between various aromatic and/or aldehyde containing molecules were studied using FT-IR, UV-VIS, and/or NMR spectroscopies. While the mechanism of the thermal conversion of ReH₇(PPh₃)₂ into Re₂H₈(PPh₃)₄ has been difficult to unravel, we have found that ReH₇(PPh₃)₂ reacts with aldehydes, under ambient conditions, to reduce the aldehyde functional groups into alcohol functional groups. To the best of our knowledge, this is the first example of the reduction of aldehydes, into alcohols, by a rhenium polyhydride complex.
EMERGENCY EVACUATION SURVEY: A COMPARISON OF STUDENT AND FACULTY AWARENESS OF EMERGENCY EVACUATION PROCEDURES.

Carolyn Krusinowski, Nathan Rieder, and Cynthia Carr*

Occupational Therapy Program
College of Health Professions, CHP

ABSTRACT

Many schools and government buildings have emergency evacuation procedures that are utilized during emergencies by all individuals, including those with disabilities. Education in these procedures can help students, staff and faculty at Governors State University develop individualized plans in the event of an emergency. The purpose of this study was to determine if the faculty and students of Governors State University are aware of the emergency evacuation plan for the university or prepare themselves and their students (disabled or not) for such an emergency. The hypothesis was that the faculty and students at Governors State University is aware of general emergency procedures, but not aware of the evacuation plan for the university or what preparation is necessary concerning students with disabilities in the event of an emergency. The survey developed to evaluate the hypothesis included three sections questioning participants’ knowledge of general emergency procedures, the university’s emergency plan, and special considerations utilized by faculty and staff for students with disabilities. A statistical analysis gave us a comparison of whether the faculty and students of the university were more or less familiar with general evacuation procedures during an emergency. This was then compared to individuals familiarity with the university’s emergency procedures and the procedures for individuals with disabilities.
TRADE AREA ANALYSIS

Jaime Bacher, Charles Olson*

Business Administration
Marketing, CBPA

ABSTRACT

This research looks at competition and consumer drawing power for four southwest suburban supermarkets. Trade areas, drawing power, and market penetration rates were all collected. These factors can help determine distances to maintain between the same and competing stores.

The focus is on four supermarkets in Tinley Park, near Harlem Avenue and 159th Street. Included were Walt's, Cub Foods, Sam's Club, and Super K. Walt's and Cub are smaller local supermarkets, and Sam's and Super K are national chains that sell merchandise as well as grocery.

Two teams of students used physical observation of village stickers on cars in each store's lots to collect data. Mapquest.com supplied the distance of competitive supermarkets to the intersection, and the U.S. Census of Population and Housing supplied demographic information.

Drawing power and market penetration rates were computed to determine how much a store relies on a given community and the store's ability to draw consumers to its location.

Graphing the market penetration rate will give an overview of how important location is. Because if the two don't seem consistent then there is something besides distance that is causing them to shop at this store.

The primary trade areas were determined for the four stores to be the same communities. The most local communities seem to be the main consumers for all stores.

Multiple regression was used to relate the market penetration rate to a few different factors. These variables were distance of community from the intersection, the number of competitive stores in each community (either Jewel or Dominick's), the percentage of the population that is employed in each community, and the median household value (used to show affluence and ability to pay). The regression showed that the results all contained the same negative sign which indicates that the relationships are actually following the logic that the further away a community is from a store, the less likely its inhabitants are to go out of their way to shop there.
THE ESTABLISHMENT OF THE STATE LEGITIMACY AND AUTHORITY THROUGH DEPENDENCY ON INTERNAL AND EXTERNAL FACTORS.

Alisher Bozorov and Dr. Larry Levinson*

Master of Business Administration, MBA
Division of Management, Marketing, and Public Administration, CBPA

ABSTRACT

Iran, following the consolidation of power by the Pahlavi dynasty led to an iron fisted tiger in the Gulf region enforced by fear, torture and the support of the West and the United States. Iran became a devoted US ally and a center for spy operations on the border of the Soviet Union during the Cold War. During the 19th and 20th centuries, Iran failed to establish its identity, culture, people and political government, until the Islamic Revolution of 1979 that instilled an Islamic state. My research concentrates on the establishment of the state legitimacy and authority in Iran under the Pahlavi and Khomeini governments.
THE RIGHT TO RECREATION: A STUDY OF THE ACCESSIBILITY OF GOVERNORS STATE UNIVERSITY’S FITNESS AREA

Kelly Keserich, Renee Rosset, and Patti Kalvelage*

Occupational Therapy
Division of Nursing and Health Sciences

ABSTRACT

The purpose of this study was to determine the accessibility of the Governors State University’s fitness area (rest rooms, locker rooms, customer service desk, emergency and campus telephone accessibility, entranceways/doors, and space around the exercise equipment) for wheelchair use. The rationale behind study was that everyone, including individuals with disabilities should be able to experience the benefits of physical activity. The study was conducted utilizing a modified version of the 74-question compliance checklist based on the requirements of the Americans with Disabilities Act (ADA) title III, regulations for buildings and facilities (McClain et al, 1998). The results of the checklist were analyzed to determine the accessibility of the fitness area. The compliance was highest in the areas of space around exercise equipment and entranceways/doors and lowest in the areas of rest room, locker room, customer service desk, and emergency and campus telephone accessibility. The results of this study indicated that Governors State University’s fitness area is not 100% compliant with title III of the Americans with Disabilities Act. Recommendations were offered to the University to increase compliance.
SYNTHESIS OF AMIDE DERIVATIVES OF TRYPTOPHAN AND TYROSINE AND THEIR CHARACTERIZATION BY FT-NMR AND FT-IR

LaShawn Brownlee and Shailendra Kumar*

Analytical Chemistry
Division of Science, CAS

ABSTRACT

Oxidation of eye lens protein in the presence of light causes crosslinking and aggregation of protein, which, in turn, are responsible for most type of cataracts. In the literature, crosslinking in proteins is mainly attributed to covalent disulfide bonds formed by the combination of two cysteine moieties. However, other amino acids, particularly, methionine, tryptophan, histidine, tyrosine, and phenylalanine are also susceptible toward photooxidation, and are oxidized to a large number of photooxidation products. The products of these "active" amino acids contain far more organic functionalities than their precursors. It is likely that several types of non-disulfide covalent bonds may form during protein crosslinking by further reactions of photooxidation products/intermediates of these amino acids.

The overall goal of the project is to investigate non-disulfide covalent linkages by photooxidation of peptide resembling derivatives of these "active" amino acids. In this work, synthesis of amide derivatives of tryptophan and tyrosine are carried out. The tryptophan is shown below. The amide products are characterized by FT-NMR and FT-IR.
THREE DIMENSIONAL REPRESENTATION OF HOCK'S CLEAVAGE MECHANISM

Coby Adamczyk and Shailendra Kumar*

Chemistry
Division of Science, CAS

ABSTRACT

The singlet oxygen "ene" reaction of A9(10)-octalin (1) followed by Hock's cleavage has been shown to produce 1,6-cyclodecanedione (2) in our laboratory. An intramolecular aldol condensation of (2) produced 4-keto-1,2,3,4,5,6,7,8-octahydroazulene (3). Singlet oxygen was generated by photooxygenation method using polymer bound rose bengal as sensitizer. Nafion-H, a commercial solid resin, was used as an acid for Hock's cleavage. The merits for this sequence are 1) less strenuous oxidizing conditions are used compared to ozonolysis conditions, 2) the reaction sequence is carried out without separation of intermediates, 3) polymeric sensitizer and acid beads are filtered, making the separation procedure easy, and 4) the reaction sequence is a general one, and provides a method of synthesis for a variety of novel cyclic compounds.

In this project, computer graphic techniques are used to show the mechanisms of singlet oxygen "ene" reaction and Hock's cleavage. The structures are drawn in ChemDraw and Chem3D softwares and then imported to Macromedia Director to depict animation of these reactions.

1. "Ene" Reaction
2. Hock's Cleavage

1. Aldol Condensation
2. -H₂O
DIGITAL IMAGING: JAPANESE WOMAN IN THE U.S.

Hiroko Masuike and Paul Schranz*

Art
Division of Liberal Arts, CAS

ABSTRACT

Although Japan has been known as a strong economic and globally developed country, it is still a conservative country. Discrimination against woman is one of them. Women have always had less opportunity than men do. I came from Japan to study photography and digital imaging because I wanted to change my career and make my life meaningful to me. Before I came to the US, I was working for a company that was under control of men. I was getting stable wages, however, I was always feeling that I was missing something important in my life. I realized that photography was the medium that I could use to fill the void.

I know that there are many women in Japan thinking like I do. I met some interesting Japanese women in many fields in this country. They came to the US to look for more opportunities and to make their dreams come true. Some of them have already found their own lives in the US, and some of them are still looking. I made five digital portraits of some of these Japanese women. I tried to show either their backgrounds, dreams or lives. I photographed them and worked with Photoshop to create the images. My work portrays their passionate lives.
## STUDENT PARTICIPANTS

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7th Annual GSU
Student Research Conference

Friday, May 23, 2001

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