CSB/SJU Faculty Participating in the 2010 SummerResearch Exchange Program Between CSB/SJU and SWU.

**INITIAL LIST: Last update – 01/11/10**

**BIOLOGY**

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| Department | Professor | Tentative Title | Tentative Description |
| Biology | [Steve Saupe](http://www.csbsju.edu/biology/profiles/ss.htm) (web)  [ssaupe@csbsju.edu](mailto:ssaupe@csbsju.edu) | A Comparison of Airborne Pollens & Molds in China and Central Minnesota | Details: compare the airborne mold, pollen, and particulate concentrations in China and central Minnesota.  I envision sending our student to China with a series of Air-O-Cell sampling cassettes (Zefon Intl) and a small suction pump to collect air samples.  Once together in China, the two students would ultimately determine the exact question/protocol to answer.  For example, they could chose to sample molds/pollen in classroom spaces or in a local forest.  They would then take the appropriate samples in China.  When they return to MN they would take comparable samples here and then analyze the samples from both locations. |
| School of Life Science, SWU | Jianping XIE  [georgex@swu.edu.cn](mailto:georgex@swu.edu.cn)  [jianpingxie@vip.sina.com](mailto:jianpingxie@vip.sina.com)  [jianpingxie@yahoo.com](mailto:jianpingxie@yahoo.com) | In vitro antimicrobial peptides directed evolution and mechanism of high activity mutants | This project will employ cutting edge protein engineering methodologies to remodel and screen high performance antimicrobial peptides based on human being endogenous bioactive peptides. special focus is those active against emerming and reemerging Mycobacterium diseases. the participants will be engaged in the National Key Project of Major infectious diseases and grasp microbiological basic skills and molecular genetics, protein engineering and molecular cloning skills will also be included. Candidates should be very proactive and self-motivated. |

**BIOCHEMISTRY**

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| Department | Professor | Tentative Title | Tentative Description |
| Chemistry – CSB/SJU | [Henry Jakubowski](http://employees.csbsju.edu/hjakubowski/) (web)  [hjakubowski@csbsju.edu](mailto:hjakubowski@csbsju.edu) | Laboratory and computer modeling of synthetic peptide binding inhibitors of low molecular weight protein tyrosine phosphatase (PTP).  Or LC/MS and 2D Gel electrophoresis studies of protein tyrosine phosphatase | We have produced 4 different mutants of low molecular PTP. We will study the binding of small synthetic inhibitors of PTP as well as phospho-peptides derived from the sequence of natural binding proteins using molecular modeling and UV/Vis and fluorescence spectrophotometry to the mutant and wild type PTP.  We will use a mutant of PTP that has no catalytical activity to detect phosphorylate proteins in cells that bind to the PTP. We will also study the mutant PTP using LC-MS. |
| School of Chemistry and Chemical Engineering, SWU | Yanhong HE [heyh@swu.edu.cn](mailto:heyh@swu.edu.cn) | Enzyme catalyzed organic synthesis | Enzymes will be used as environmentally benign catalysts in asymmetric organic synthesis. |

**CHEMISTRY**

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| Department | Professor | Tentative Title | Tentative Description |
| Chemistry – CSB/SJU | [Michael Ross](http://www.employees.csbsju.edu/mross/default.htm) (web) (Analytical) [mross@csbsju.edu](mailto:mross@csbsju.edu) | photodecomposition of drugs and personal care products in surface water. | This project includes: a) the study of the photodecomposition rate and mechanism of these materials by direct as well as indirect mechanisms; b) a study to look at the levels of these materials within East Gemini Lake, which is the place the SJU Waste Water Plant dumps its outflow using LC, LC-MS and NMR. |
| School of Chemistry and Chemical Engineering, SWU | Yun Xiang  [yunatswu@swu.edu.cn](mailto:yunatswu@swu.edu.cn) | Aptamer-based electrochemical biosensors for small biomolecules | This research project will focus on employing aptamers as probe molecules and nanomaterials or enzymes as signal amplification labels to achieve highly sensitive electrochemical detection of small biomolecules |

**PSYCHOLOGY**

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| Department | Professor | Tentative Title | Tentative Description |
| Psychology – CSB/SJU | [Linda Tennison](http://employees.csbsju.edu/ltennison/) (web)  [ltennison@csbsju.edu](mailto:ltennison@csbsju.edu) | Cross-cultural studies of social cognition using explicit surveys and the implicit associations task. | Linda Tennison:  Cross-cultural studies of social cognition using explicit surveys and the implicit associations task.  Possible topics include cross-cultural comparisons of attitudes towards the aged (in participants of varying ages) and intercultural attitudes, social change and cultural contact (also potentially with different aged samples).  . |
| School of Psychology, SWU | Lingxiang XIA  [xialx@swu.edu.cn](mailto:xialx@swu.edu.cn) | Cross-cultural studies of self-reference effect or social comparison | Topics: (1) Cross-cultural contrast of the effects of self-reference, mother-effect, friend-reference between American and Chinese college students; (2) Cross-cultural contrast of the implicit attitudes in social comparison. |

**PHYSICS 2 of the 3 shown here. Depends on compatibility of the projects**

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| Department | Professor | | | Tentative Title | | Tentative Description |
| Physics – CSB/SJU | Adam Whitten [awhitten@csbsju.edu](mailto:awhitten@csbsju.edu) | | | 1.)  Direct-sun measurements using a spectrometer to analyze levels of ozone, aerosols, and water vapor. The students will calibrate a commercial spectrometer, collect data, and analyze it to extract information on the concentrations of atmospheric constituents. 2.)  Spatial and temporal variations of atmospheric ozone as measured by satellites.  The students will use existing software to access publicly available satellite data and then write write software routines to extract the information of interest.  Spatial variations will be analyzed and temporal variations can be compared to data collected with a spectrometer. | | 1. The students will calibrate a commercial spectrometer, collect data, and analyze it to extract information on the concentrations of atmospheric constituents.  2. The students will use existing software to access publicly available satellite data and then write write software routines to extract the |
| Physics - SWU | Xiaopeng You  [Yxp0910@swu.edu.cn](mailto:Yxp0910@swu.edu.cn) | | | Pulsar Astronomy about observational pulsar data process and analysis | | The students will learn how to process the original observational pulsar data and analyze them to get the results. For instance, pulse profiles, polarization, and pulsar timing |
| Physics – CSB/SJU | | Sarah Yost [syost@csbsju.edu](mailto:syost@csbsju.edu) | Observational astronomy at SJU (verify potential variable stars) and astrophysical analyses of high-energy "gamma-ray burst" events from public data | | . | |
| Physics - SWU | | Jiangming Yao  [jmyao@swu.edu.cn](mailto:jmyao@swu.edu.cn) | Constraints on the equation of state from the observations of neutron stars. | | A relativistic nuclear energy density functional theory will be applied to extract the equation of state (EOS) for nuclear matter, which will be used as the inputs of TOV equations for neutron stars. The properties of EOS are related to the predicted maximal mass and radius of neutron stars. Vice versa, the observations of neutron stars provide us a way to determine the parameters in energy density functional, which will be used later to study the properties of nuclear structure. | |

**MODERN AND CLASSICAL LANGUAGES**

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| Department | Professor | Tentative Title | Tentative Description |
| Modern and Classical Languages– CSB/SJU | Zhihui Sophia Geng  [sgeng@csbsju.edu](mailto:sgeng@csbsju.edu) | comparative study of Chinese folklores in Chinese literature and Chinese immigrant/ Chinese American literature | At SWU, student researchers will locate and collect well-known Chinese folklores such as Cai Ji, Wang Zhaojun, Cowboy and the Weaving Goddess (niu lang zhi nu), One Thousand Year Old Fox (qian nian hu). They will compare the differences among various versions in the history books (shi shu), mainstream media, oral history and vernacular culture (in this case, in Chuan Yu culture).  At CSB/SJU, student researchers will read the same folklores in   Chinese immigrant and Chinese American literature. Works include Maxine Hong Kingston’s *Woman Warrior*, Amy Tan’s *The Joy Luck Club*, Gish Jen’s *The Love Wife*, and Rui Yang’s *Spider Eaters*.  They will do textual analysis and compare the differences of these folklores in Chinese literature and Chinese immigrant/Chinese American literature in terms of plot, theme, language usage and function. In addition, student workers will brainstorm and find reasons why the folklores are used differently, what purposes they served in its particular contexts.   Students will design a roadmap for a research paper on the different usages of folklores in Chinese literature and Chinese immigrant/Chinese American literature, including an annotated bibliography  bond forged in the summer exchange program, finalize the paper, and look for opportunities to present the research paper as co-authors |
| -School of Foreign Languages, SWU | Yimin LUO  [luoyimin@swu.edu.cn](mailto:luoyimin@swu.edu.cn)  [sweetswanofavon@263.net](mailto:sweetswanofavon@263.net) | Imagism：theory and practice，a comparative study | At CSB/SJU, student researchers will read Ezra Pound’s imagist poetry and his theory of imagism. And will also read and investigate the imagery of other U.S. poets like Walt Whitman, Emily Dickinson, Robert Lee Frost, William Carols Williams to watch the image growth of American poetry.  At SWU, student researchers will read from the rich imagist poetry country from the countless poems of immortal poets of Wang Wei, Li Bai, Du Fu, Bai Juyi, Li Qingzhao, Li Sangying and so on in order that they can find how imagism has been lulled and translated into practice. And the student will be able to dig out how imagist poetry prosper in Ancient China and theory booms in America though its practice differs in terms of cultural grounds which helps understanding the cultural differences in between.  Students will plan for a research paper on the ties and bounds of imagist spirit as a poetic soul as well as a cultural core element in Chinese tradition while the US tradition takes a different road to other orientation of poetic culture. They will collect materials, read and digest and give out an annotated bibliography.  bond forged in the summer exchange program, complete the paper, and look for opportunities to present the research paper and have it published somewhere in the U.S. as co-authors |

**ECONOMICS**

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| Department | Professor | Tentative Title | Tentative Description |
| Economics | Parker Wheatley  [pwheatley@csbsju.edu](mailto:pwheatley@csbsju.edu) | An  Economics-Behavioral study and comparison of savings habits and saving propensities between Chinese and American students/individuals. | This study will seek to better understand the behavioral and economic determinants of consumption, saving, and borrowing habits of American individuals and/or households.  Appropriate methods (either survey, focus group, or experimental) will be used to study this topic among individuals in the Central Minnesota/Twin Cities areas.  Moreover, data from the Survey of Consumer Finances will also be studied to consider a broader set of reliable household data to explore questions on this topic.  As the project is more fully developed, consideration will be given to selecting a subset of the population to study in more detail, e.g., low-income, minority, immigrant, or middle-income households. |
| * School of Economics and Management, SWU | Xiaoyang LI  [zjclxy@swu.edu.cn](mailto:zjclxy@swu.edu.cn) | The Research for Family Consumption Behavior of Migrant Workers | To research the family consumption behavior of migrant workers, we can more fully master the survival status of migrant workers, and the study of the urbanization process of migrant workers is also of great significance.  The content of the study have the level of consumption, consumption structure, consumer preferences and consumer attitudes, examining the influence on the family social status arising from the changes in household consumption and so on. |

**COMPUTER SCIENCE**

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| Department | Professor | Tentative Title | Tentative Description |
| Computer Science |  |  |  |
| * School of Computer Science and Information Technology, SWU | Ming YANG  [yangming@swu.edu.cn](mailto:yangming@swu.edu.cn) | Image low-level feature extraction | This project will analyze, understand and extract low-level image features such as texture, color, shape and intensity in a content-based image retrieval system. One objective of this project is developing programs that can measure the shape, the average density and the brightness of objects in digital images. Another objective is to discuss the existing techniques of extracting features and develop a new integrated method. The outcome of this project is a prototype of the proposed method or forming an experimental system needed for further research. |