

## UC Merced Center for Excellence on Health Disparities Graduate Student Project Abstracts

### Year 2 Cohort



### **Roberto Corona**

*Advisor Michael Hoyt, School of Social Sciences, Humanities and Arts*

Roberto is a second year PhD student in health psychology. He received his undergraduate degree from California State University of Northridge in psychology. At CSUN, he was a Minority Access to Research Careers biomedical research training program funded by the National Institutes of General Medical Sciences fellow. He worked on a project aimed to understand the cognitive performance of dementia patients and caregiver burden and distress.

Since November 2010, he has been actively participating in the recruitment and assessment activities in a study of factors related to health-related quality of life in men with prostate cancer. Prostate cancer is the most common type of cancer in adult males in the United States. Men undergoing prostate cancer treatment often experience a myriad of physical and emotional symptoms that affect their overall quality of life. However, relative to other prevalent cancer types little research exists characterizing the experience of men and the psychological and biological factors associated with better quality of life and adjustment.

The current phase of the study has focused on recruiting participants from Central Valley cities and towns (e.g., Modesto, Ceres, Atwater, Sonora, Merced). Efforts have included community outreach to locally organized groups, agencies, and health care facilities. A goal of this study phase is to obtain a sample of men that reflect the diversity of the region in terms of race/ethnicity and socioeconomic status. Corona will focus on patterns and predictors of sleep quality in men with prostate cancer. Research findings suggest that cancer patients suffer disproportionately higher rates of sleep problems in comparison to the general population. This is a particularly pervasive problem following treatment for prostate cancer.

Dysregulated sleep can negatively affect the psychological and physical well-being of cancer survivors over time. It will be especially important to examine sleep disturbance within a health disparities framework. Sleep quality is particularly sensitive to psychological stress. Chronic stress experienced by individuals with lower levels of resources (e.g., lower SES, poorer healthcare access, etc.) may place some cancer survivors at risk for higher levels of dysregulated sleep and ultimately poorer physical and psychological outcomes. Therefore, during the COE participation year Corona will focus on the investigation of the psychosocial factors that

contribute to the regulation of sleep patterns in a diverse sample of men with prostate cancer from the Central Valley.



## **Sydney Loewen**

*Advisor Anna Song, School of Social Sciences, Humanities and Arts*

Sydney Loewen is currently a second year PhD student in Psychological Sciences with an emphasis in Health Psychology at the University of California, Merced. Sydney also received her undergraduate training from UC Merced where she studied Biological Sciences. Sydney was born and raised in the Central Valley and thus intimately aware of the health concerns of the area.

While taking a year off from school, Sydney worked at the Alliance for Community Research and Development where she became interested in studying sexual risk behavior among young adults through work with community organizations. Considering that the Central Valley experiences sexually transmitted infections (STIs) and unintended pregnancies at rates similar to third world countries; and, that national estimates currently show that 1 in every 2 sexually active young adults will contract an STI by the age of 25, the Central Valley offers a unique population in which to conduct research on sexual risk behavior and contraception use.

Sydney is currently studying young adults perceptions of sexually transmitted infections and unintended pregnancy and determining if this perception affects the young adults subsequent sexual behavior. Thus if someone does not believe that there are a lot of sexually transmitted infections are they more likely to not use a condom? She is also studying the effects of media use on young adults sexual behavior to determine if increased media use leads to more risky sexual behavior and also if there are protective behaviors that are formed from media use.



## Chai Lor

*Advisor Linda Hirst, School of Natural Sciences and School of Engineering (BEST program)*

Chai Lor is currently a 2nd year graduate student at UC Merced in the BEST graduate program, having graduated from UC Merced with a Bachelor of Science in Bioengineering in 2009. He first started as a graduate student in Dr. Jennifer Lu's lab studying block copolymer for nano patterning techniques and synthesis of nanowires, later moving to Dr. Linda Hirst's lab to investigate the effects of omega-3 fatty acids on cellular membrane using atomic force microscopy.

The interesting molecule docosahexaenoic acid (DHA), an omega-3 fatty acid, is an important fat for human health. It plays a major role in retinal and neural development during the early stages of birth. Moreover, DHA has been incorporated into the human diet as a beneficial supplement to prevent and attain a healthy life. DHA is rich in several food sources such as fish and flax seeds. It has been widely studied that DHA can prevent cancer, cardiovascular disease, obesity, arthritis, and mental disorders.

With the support of COEHD, Lor hopes to learn about the connection between DHA effects on health and consumption of DHA from the community. The central valley of California is listed as one of the most poor area in the states with high rates of low income families. There are strong correlations between low SES and health problems for families who do not have the funds to provide a healthy meal. More importantly, neural development occurs during the initial years after birth and while still in the mother's womb. Low consumption of DHA along with other nutritional sources can be a huge factor in the mental development of babies. The DHA levels in breast feeding milk and processed milk are the primary concerns in this study.



## **Amy Moffat**

*Advisor Nella Van Dyke, School of Social Sciences,  
Humanities and Arts*

Amy Moffat is currently a PhD student in Social and Cognitive Sciences at University of California, Merced, with an emphasis in sociology. She received her MA in Applied Anthropology from University of Maryland, College Park and her BA in Economics / Management and Anthropology from Beloit College, Wisconsin.

Moffat's major research interest is the ways that social support can improve health outcomes, specifically by the use of a doula during pregnancy and childbirth. "Doula" refers to an experienced woman who helps other women during the childbearing year, who is not a friend, loved one, or kin, and who is professionally trained. Doulas provide continuous one-on-one support during labour and delivery. Despite the fact that doulas do not receive medical training and have no responsibility for the medical health or well-being of the pregnant woman or the fetus/infant, the use of this non-medical intervention during birth has been found to improve poor maternal and infant health outcomes.

Merced County consistently ranks the lowest county in the state for pregnant women receiving early and adequate prenatal care, and we see racial health disparities between African-American, Asian, and White women. Other measures important for maternal and infant health include reducing the number cesarean (c-section) births among low risk (full-term, singleton, vertex presentation) women, reducing the number of low birth weight and very low birth weight babies, early and adequate prenatal care, and increase the proportion of pregnant women who attend a series of prepared childbirth classes. Unfortunately for this region it will take leaps and bounds just to reach the national baseline rates, much less achieve the Healthy People 2020 objectives. The use of a doula by women during the childbearing year is one such alternative option to improve health outcomes across racial/ethnic groups.



## **Sarah Scott**

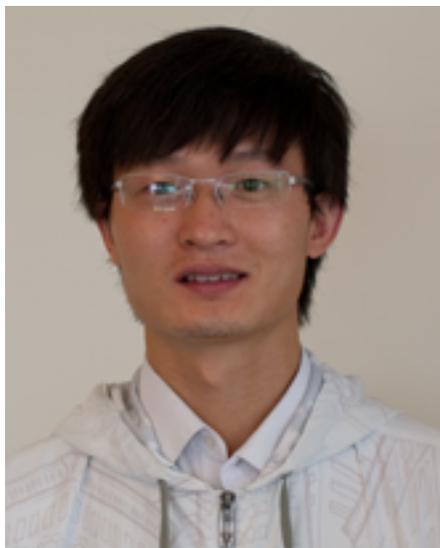
*Advisor Jan Wallander, School of Social Sciences,  
Humanities and Arts*

Sarah Scott is a second year PhD student in Health Psychology. She received her BA with High Distinction in psychology from the University of Virginia (2008), where she developed an interest in positive psychology and psychosocial influences on physical and mental health.

Upon moving to Merced, Sarah became particularly interested in the health disparities caused by low SES and ethnic minority status. For example, the average child from a low-SES family is estimated to have a life expectancy six years lower than a high-SES child (Chen et al., 2002). On a national scale the social and economic costs of child poverty total half a trillion dollars each year, almost 4 percent of the GDP, in loss of productivity, higher crime rates, and poorer health (Center for American Progress, 2007). Furthermore, a marked proportion of children are affected by these risk factors. According to the U.S. Census Bureau (2007), approximately 20% of children live in poverty and children reporting race/ethnicity other than (non-Hispanic) White are expected to constitute more than half of all children in the United States by about 2040.

Sarah's current research examines the effect of low socioeconomic status on quality of life and how this may be moderated by positive characteristics of the child and family. The protective factors of particular interest are: prosocial behavior, family cohesiveness, social support, empathy, and positive affect.

Ultimately, Sarah is interested in the development of positive psychology interventions to promote happiness and overall resilience to adverse events in children and adults.



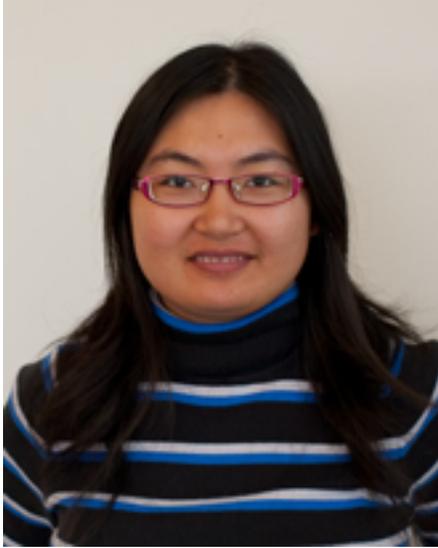
## Shuhai Xiang

*Advisor Matt Meyer, School of Natural Sciences*

Shuhuai Xiang is a 4th year graduate student in School of Natural Science. After he received his bachelors degree in Chemistry in Sichuan University in China, he started his graduate research in UC Merced with Dr. Jennifer Lu on Thermo and Photo responsive polymer materials. Later he changed his interest into hydrogen transfer and he is currently working in Dr. Matthew Meyer's lab.

Hydrogen transfer is a process that is fundamental to a variety of biochemical reactions and very important to a lot of useful routes in chemical synthesis. However, the tunneling of most heterolytic hydrogen transfer is still poorly understood. The understanding of hydrogen tunneling is very important because it can help us elucidating disease mechanism and develop new catalysts for drug synthesis.

Part of his motivation to become a scientist and to pursue research in Prof. Meyer's lab is rooted in my desire to make health care more affordable, in general. The primary social impact of the work performed in Prof. Meyer's group is ultimately intended to be the development of new catalysts that will reduce costs associated with drug development and manufacture. Another aim of his research is to develop catalysts that will result in better pharmaceuticals. The drug discovery process, in their opinion, is seriously flawed. Disease targets (often enzymes or receptors) are screened using a set of molecules of limited structural diversity. Better asymmetric catalysts promise to provide more structural diversity in screening sets. The ultimate outcome of this improvement will be pharmaceuticals that will be active at a lower dosage and more selective for the disease target, thus reducing the chances for serious side effects. His efforts, which are specifically directed at making cheaper and better pharmaceuticals, are likely to have a substantial positive impact on the treatment of disease among the economically disadvantaged. While his approach to addressing health disparities is rooted in his scientific efforts, he look forward to get insights from the interactions with other social science colleagues in COE on his scientific approach.



## **Jie Xue**

*Advisor Patti Liwang, School of Natural Sciences*

Jie Xue is currently a PhD candidate in School of Natural Science at University of California, Merced. She received her Bachelor degree in Medicine from Sun Yat-sen University in China. She is always interested connecting basic research to clinical use. During the last year of her undergraduate training in hospital, she understood more about the importance of both basic research and clinical treatment, as well as the importance of filling the gap in order to serve patients.

Jie is now working on a protein, Griffithsin, which has potent anti-HIV activity. This drug is a promising microbicides candidate. If the basic and clinical researches succeed, this drug could be used as a component of topical gels or creams thus stop HIV sexual transmission, protecting women and children from HIV. She is investigating the mechanism of this potent antiviral protein, such as interactions between Griffithsin and HIV virus.

During the training provided by COE program, she would be able to communicate with researchers and scientists working in different HIV-related fields, from sociologists to medical doctors. She would also be presenting her recent work on this promising HIV drug, and discuss HIV prevention with local community as well as scientists. This program would greatly help her research and direct her further goals in science.