
Other Research by McNair Scholars at the University of Oregon

Abstracts

Liquid Droplets on Ratchet-like Surfaces

Benjamin Jose Alemán, Mathematics/Physics

Faculty Mentor: Heiner Linke, Physics

Film-boiling liquid droplets on spatially asymmetric surfaces exhibit preferential motion that obeys a first-order drag equation. A physical model for this self-propelled motion is presented here that accounts for the driving force and drag terms of the drag equation; the model employs flow of film-boiling generated vapor as the principle mechanism for motion. We compare the results to experiment and find good agreement across a wide range of droplet volumes and liquid types.

Mechanisms for Seismicity on the Southern Endeavor Segment

Michael Creech, Mathematics/Geological Science

Faculty Mentor: Douglas Toomey, Geological Science

The mid-ocean ridge is the longest continuous mountain chain on earth and is the source for the approximately 20 cubic kilometers of oceanic lithosphere generated each year. Mid-ocean ridges are classified by spreading rates into three groups: fast, intermediate, and slow. Fast spreading ridges are dominated predominantly by magmatic volcanism, whereas slow spreading ridges are predominantly governed by tectonic rifting. Intermediate spreading

ridges have yet to be classified by either of these two processes. The Juan de Fuca ridge is an intermediate spreading ridge that exhibits both magmatic and tectonic features. Earthquake swarms are indicative of both of these processes. Using data from the Endeavor seismic array, the swarm on May 10, 2004 can be classified as either magmatic or tectonic. A large magnitude earthquake followed by aftershocks will identify a tectonic event, and a magmatic event will reveal a migration pattern in the seismic record.

Indigeneity in the Early Slave Narrative

Christine Finley, Ethnic Studies/Sociology
Faculty Mentor: Shari Huhnforf, English

To date, leading critics of the slave narrative genre, including Henry Louis Gates, Jr. and William L. Andrews, have disregarded a significant part of early slaves' identities and histories by overlooking their indigeneity. Nevertheless, early authors of the slave narratives explicitly discuss their indigenous identities and the colonial processes of dispossession and removal in their narratives. I will analyze an early slave narrative, *The Interesting Narrative of the Life of Olaudah Equiano, or Gustavus Vassa, The African* (1789) to examine how a consideration of that slave's indigeneity transforms our interpretations of the text. Viewing African slaves in part as displaced indigenous people could reveal fundamental similarities between black and indigenous people located in this country, now called the United States, based on shared histories of forced removal, genocide, and other forms of colonialism. These similarities could, in turn, provide the foundation for political coalitions between black and indigenous communities to fight ongoing ideologies and practices of racism.

Levinas, Sartre, and the Other

Nanda Golden, Philosophy

Faculty Mentor: Theodore Toadvine, Philosophy

In their works, both Emmanuel Levinas and Jean-Paul Sartre explicitly thematize “the Other.” This study attempts to draw out their accounts, put them in dialogue, and use both to forge a stronger understanding than either could provide alone. To hone the question of what the Other is for Sartre and Levinas, the author focuses on sections of two texts: Sartre’s *Being and Nothingness* and Levinas’s *Totality and Infinity*. The author finds that Sartre’s Other is centered around the look and the distinction between Other-as-subject and Other-as-object. Levinas’s Other is focused on his concepts of the face, infinity, and ethics. Comparing the two works reveals that neither accounts for empathetic interactions between self and other.

The Social Dynamics of Building a New Four Square Church

Kristina Kahl, Sociology

Faculty Mentor: Marion Goldman, Sociology

Social scientists use secularization theory to debate whether religious participation is weakening among U.S. population. A recent theory deems American society to be highly religious based on what is termed a “religious economy” in which an unrestricted religious marketplace allows for a higher demand of religious participation. Within the last fifty years the religious economy has produced a new supply of non-denominational churches, specifically the Four Square ministries. Although the participation level of Four Square

churches nationally has been slowly declining, in Eugene, Oregon, they have remained stable. Recent decisions to build a new Four Square church that might possibly attract different constituents and create a new market niche are under way. This research will focus on key participants of this process, specifically the female pastor who is the principle organizer of the planting for this new church. It will be of particular interest to discover if a gender-centered orientation develops. The goals of this small exploratory study are to document the complexities of religious involvement required in the building of a new church, whether this church fulfills any market niches, and if so, what market niche or niches it satisfies.

Transnational Violence and the United States War in Viet Nam

Khanh Le, Political Science/Ethnic Studies

Faculty Mentor: Lynn Fujiwara, Women's and Gender Studies

The United States employed racial slurs to dehumanize Viet nationals and construct them as "enemies" during the US war in Viet Nam. Thirty years later, the Viet/American community continues to encounter a hostile, war-created environment in the U.S. that manifests itself in hate crimes and other forms of hatred. Today, attacks on the Viet/American community by white Americans reflect racist constructions of Viet/Americans as "gooks" and "enemies," thus justifying both hate-motivated actions by individuals and institutional racism. An analysis of several specific hate crime and speech incidents committed against Viet/Americans will reveal how people were racially constructed in national and ethnic newspapers. Further, the language the assailants used,

as well as public commentary regarding each incident, allows a comparative examination of the construction of racial hate toward Viet/Americans during and after the war. These incidents not only reveal how heterosexual, white masculinity, and supremacist narratives attempt to reinforce, control, and oppress Viet/Americans through violent acts, but also show the ways Viet/Americans and other Asian/American communities have challenged these racist attacks.

Flavin Derivative Imprinted Polymers for Environmentally Safe Oxidative Catalysis

Damion Meany, Biology/Biochemistry

Faculty Mentor: Bruce Branchaud, Chemistry

Past research has shown that newly formed elemental solids and specially treated polymers can surround introduced molecules and form an imprint of them. In addition, antibodies, which are grown to bind the transition-state analog of a reaction, act as catalysts when introduced to that reaction. Most living organisms use isoforms of the biodegradable molecule flavin as co-factors for metabolically essential oxidative reactions. Riboflavin derivatives with the properties of transition-state analogs will be created and then imprinted within a polymer, and that polymer will then be used to catalyze novel oxidative reactions. This polymer can replace the environmentally hazardous heavy metal compounds commonly used to catalyze the oxidative reactions often used in organic synthesis. Polymer catalysts will also have enzyme-like specificity unlike the non-specific oxidation that occurs with heavy metal oxidizing agents.

**In Order to Preserve Our Future:
An Analysis of German and American Responses to the
Problems of Depression-Era Youth**

Tanya Parlet, History

Faculty Mentor: John Nicols, Mentor

Faculty Mentor: Daniel Pope, Mentor, History

Although the severity of the Great Depression prompted the governments of Weimar, Germany and America to enact specific programs to combat the growing problems of youth, the Nazi government began its youth programs independent of the Depression. Within the Third Reich, all youth policy was subordinate to the primary ideal of creating the perfect National-Socialist citizen. However, citizens and elites of both states did recognize a common experiential gap between the generations. Yet, in addressing this problem each state enacted strikingly different solutions. To improve our understanding of the dichotomy between the German and American responses, it is necessary to explore important elements of comparability. Although there were variations in degree, the programs in each country were centrally funded and administered. However, the programs implemented in each state held vastly different roles for families, churches, schools, and private and public youth organizations. An analysis of the policies adopted both in and outside the government to deal with youth problems in the 1930's, along with participant and organizational accounts, will increase our understanding of the often similar ideals, yet overall quite disparate approaches to assist and "improve" American and German youth.

Metal-mediated cyclization of 2-(Phenylazo)benzonitriles: New methods for the generation of the isoindazole nucleus

Jazmin Rivers, Chemistry

Faculty Mentor: Mike Haley, Chemistry

Heterocyclic compounds are important in organic synthesis because of their prevalence in biologically active compounds, such as inhibitors and anti-tumor agents. The indazole moiety constitutes the key subunit in many drug substances with a broad range of pharmacological activities. Structurally related isoindazoles, which have only recently begun to be investigated in drug discovery programs, have received only cursory examination as a result of the many synthetic difficulties of accessing this heterocyclic core. This paper focus on the cyclization of 2-(phenylazo)benzonitriles, which in turn are prepared in 3 steps from commercially available anilines. Depending on the reaction conditions, cyclization of the 2-(phenylazo)benzonitriles with SnCl_2 in EtOH gives good yields of 3-aminoisoindazoles, whereas use of ZnCl_2 in the presence of excess alkene affords aziridines by way of the isondazolylnitrene.

Why There Will Never Be a Nigger Eye for the White Guy: The Intersections of Race, Sexuality, and Consumption

Margarita Smith, Ethnic Studies/History

Faculty Mentor: Daniel Rosenberg, Clark Honors College

Faculty Mentor: Martin Summers, History/Ethnic Studies

In the early 1990s two parallel movements occurred in popular culture: black hip-hop artists reclaiming the pejorative nigger and the gay community reclaiming the pejorative queer. The intent of both linguistic shifts was to neutralize the power of the invective and to create an encompassing sense of community for underrepresented

groups. Through a critical analysis of recent cultural texts, this paper will explore the overt shifts in usage as well as the implicit associations in popular representations of the words nigger and queer. These texts demonstrate that representations seeking to subvert the pejorative often reinforce longstanding stereotypes.

Ideology and Policy: Public Discourse and the Birth of The Welfare Queen

Margarita Smith, Ethnic Studies/Honors College

Faculty Mentor: Martin Summers, Mentor Ethnic Studies/History

In political as well as cultural discourses, perceptions of welfare recipients are heavily imbued with specific assumptions based on gender, race and sexuality. The emergence in the mid-1970s of "The Welfare Queen" archetype was a significant discursive gesture in shifting sentiments regarding American welfare policy and foreshadowed subsequent welfare reform policy. Simultaneously, opposing political discourses and film representations sought to challenge both the meaning of the traditional family unit as well as the government's responsibility to the poor. The Welfare Queen myth constructs poor, racialized women as internal enemies of the state and creates the justification to disavow the poor within the ideological borders of the nation. Thus, not only are the poor unworthy of support, but they are also a threat to national integrity.

A Linguistic Analysis of Gesture in Second Language Discourse

Isaac Torres, Linguistics/Communication Disorders Science

Faculty Mentor: Eric Pederson, Linguistics

This is a study of the frequency of metaphoric hand gestures used while speaking about abstract concepts in one's second language. In this study, the native language of all subjects is Spanish, and the second language is English. The increased difficulty of orally articulating abstract concepts in one's second language should lead to a higher frequency of metaphoric hand gestures to help express the idea. This study follows the gesture classification system of McNeill (1992) and the methodology of Gullberg (1998). The subjects are presented with four hypothetical situations containing moral or ethical dilemmas, two of which are presented and discussed in Spanish and the other two in English. The conversations are video-taped and analyzed for the frequency of metaphoric hand gestures.