

# Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

## Online Proceedings

### SESSION 2K

#### REPRESENTING REALITIES AND IDEALS, RENEGADE AND REMEMBERED

*Session Moderator: Julia Sapin, Art History, Western Washington University*  
**258 MGH**

3:45 PM to 5:15 PM

\* Note: Titles in order of presentation.

##### **Photoshop: Idealism in our Modern World?**

*Erin Arnold, Junior, Art History, Western Washington University*

*Mentor: Barbara Miller, Art, Western Washington University*

Most people think of idealism as an old and forgotten notion from antiquity. However, today, this concept seems to have taken on an afterlife. This essay looks at how Photoshop goes beyond stylistic preferences of the past and investigates how photo editing informs our current notion of ideal forms. Instead of a sculptor such as Praxiteles carving his vision of Aphrodite of Knidos, a designer using Photoshop idealizes the figure with key commands. These altered types permeate dominant media, producing a widespread prescription for the female body. Through creating a case study of edited photos seen in magazines and advertising I will provide evidence that a widespread ideal is in fact being created, an ideal which would not be able to be created without the help of Photoshop. Ralph Lauren Co. took Photoshop too far when they morphed Filippa Hamilton, a beautiful model, into an unnatural creation. In this Photoshopped image of Hamilton in which her head is larger than her hips, many have noted that she looks painfully emaciated and almost cartoonish. It is unrealistic to think that any woman could naturally be that thin. This is an example of how Photoshop is being used to create an unattainable ideal beauty, one which cannot even be obtained with the help of plastic surgery. This widespread ideal has led many women to go so far as to use plastic surgeries in the hopes of obtaining the current, electronically enhanced, ideal form of feminine beauty. I will also be examining how these examples of excessive photo editing and the unnatural ideal they create have become a problem within our society. This research helps to examine how current technologies are

exacerbating the societal problem of low self-esteem seen in females who do not fit into this ideal.

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##### **Iconography in the Work of Ai WeiWei**

*Lillian (Lilly) Wasserman, Fifth Year, Art History, English, Western Washington University*

*Mentor: Barbara Miller, Art, Western Washington University*

*Mentor: Julia Sapin, Art and Art History, Western Washington University*

Ai WeiWei, a contemporary Chinese artist and self-described "dissident," is the first to admit that political activism forms the basis of his aesthetic. In an artist's statement, from a recent exhibition at the Hirshhorn Museum in Washington, DC, Ai plainly stated: "I've always believed it is essential for contemporary artists to question established assumptions and challenge beliefs." The majority of Ai's installations at the Hirshhorn function as a platform for his renegade agenda, and his piece He Xie is no exception. The striking collection of ceramic river crabs, in various shades of red and brown, is invested with manifest symbolism. However, a deeper investigation of the work reveals a latent significance, not readily gleaned from a limited investigation of its formal elements. In order to adequately engage with Ai's work, one must look beyond the surface and trace the installation back to its historical origins and cultural conditions. To draw out his strategic use of symbolism, I analyze Ai's installation according to German art historian Erwin Panofsky's iconographical approach. Panofsky begins with the simplest translation of visual forms and works his way toward a more nuanced historical and culturally relevant perspective. In short, Panofsky's three-pronged methodological approach allows me to demonstrate the complexity of Ai's He Xie. In this presentation, I

discuss the conceptual stimulus behind Ai's sprawling display of porcelain delicacies, exploring its political significance and identifying a larger metaphysical trend in the artist's career.

## POSTER SESSION 4

Commons East, Easel 81

4:15 PM to 5:45 PM

### Analyzing the Critical Role of Pskl, a Sperm-Specific Membrane Protein, in *Drosophila* Fertilization

Trung Phan, Senior, Biology (Molecular, Cellular & Developmental)

Howard Hughes Scholar, Mary Gates Scholar

Mentor: Barbara Wakimoto, Biology

GCS1 is a protein that plays a crucial role in angiosperm plant fertilization. Surprisingly, comparative studies show that GCS1-like proteins exist within a wide variety of eukaryotic species. In *Drosophila*, the protein Pskl is predicted to have a GCS1-like domain that affects male gametes, but its exact role in sperm formation and sperm function is not well characterized. Studying Pskl is imperative towards broadening our understanding of sexual reproduction in eukaryotes. Comparisons of Pskl to its homologs in angiosperms, algae, and protists may provide insight into mechanisms of fertilization that are evolutionarily conserved across diverse species. Furthermore, defining how the protein works could contribute to the development of reproductive therapeutics or drugs that inhibit the procreation of illness-causing organisms. The goal of this research is to understand how Pskl regulates fertility by defining its functional domains. Through gene deletions generated by imprecise excisions of a transposable element called MiMIC, analysis of both the molecular and phenotypic consequences can improve our understanding of sequences necessary for normal *pskl* expression. If male flies with the chromosomal derivative are sterile or have reduced fertility, then removed sequences flanking the MiMIC insertion site are likely crucial for successful fertilization. Alternatively, generated deletions may extend in either or both direction of the insertion site and impact viability, shedding light on whether *pskl* or its adjacent genes are essential for development. In this report, we describe the nature and consequences of the transposon excisions in *pskl*, both molecularly and phenotypically.

## POSTER SESSION 4

Commons East, Easel 82

4:15 PM to 5:45 PM

### A Paternal-Effect Gene Necessary for Chromosomal Stability and Progression of Embryogenesis in *Drosophila*

Andrew Armstrong (Andrew) Lawson, Senior, Biology (Molecular, Cellular & Developmental)

Mary Gates Scholar

Mentor: Barbara Wakimoto, Biology

Paternal effect mutations provide experimental tools to identify the unique contributions that fathers provide to their offspring. We are studying the *ddbt* (*deadbeat*) gene of *Drosophila melanogaster*, which encodes a chromosomal protein that is incorporated into spermatid nuclei during spermatogenesis and is required for normal embryogenesis. Embryos fathered by *ddbt* mutant males have extensive chromosome damage and embryogenesis terminates prematurely. This study asks whether *ddbt*-induced damage is a consequence of improper mitotic chromosome segregation in the embryo, or if the damage is independent of chromosome segregation. To address these alternatives, *ddbt* males will be mated to females carrying the *giant nuclei* (*gnu*) mutation. This maternal effect mutation permits repeated rounds of DNA replication but prevents chromosome segregation in the embryo. If DNA replicates to the same extent in embryos produced by *gnu* mothers and *ddbt* fathers compared to those of control fathers, this would suggest that *ddbt*-induced breaks occur during chromosome segregation. The alternative is that the chromosomes of *ddbt* fathers have preexisting damage, in which case replication would arrest due to preexisting DNA breaks. We are examining nuclear size and morphology in experimental and control embryos using confocal microscopy and assay for chromosome damage using techniques that detect breaks in DNA. Investigation of *ddbt* promises to improve our understanding of the paternal contributions to embryonic development.