



# WHAT GOOD ARE AESTHETICS?

APS DFD MINISYMPOSIUM: FLUID MECHANICS  
AND ART  
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# Art and Aesthetics

## What is art? What *good* is art?

- Art theory
  - To depict reality: Realism  
< then photography happened >
  - To show emotions: Expressionism
  - To elicit visceral reactions: Formalism
  - Postmodernism, all of the above, plus social, ethical, political concepts. Nothing is absolute.

## What is good art?

- Aesthetics
  - Study of beauty
  - Psychological measure of affect
  - Metric for art: is it art? Is it good art?
    - Money is an aesthetic
  - Set of guidelines, design rules that define an artist or a movement

# Hertzberg's Theory of Art

- Art is the embodiment, the instantiation, the execution of an extraordinary vision.
- Mundane, routine activities don't make the cut.
- Any endeavor can be raised to the level of art: Mathematics, physics, cooking, sports.
- Art is not a luxury, not something extra for times of prosperity, not an afterthought to necessary work.
- Art and aesthetics give meaning to our lives, and are actually crucial for explaining / getting through the difficulty, racism, wars, and pressures of the world.



# Aesthetics in Flow Visualization

- Beauty
- Power
- Destruction
- Oddness



Illustrations from student work, professional artists and public choices



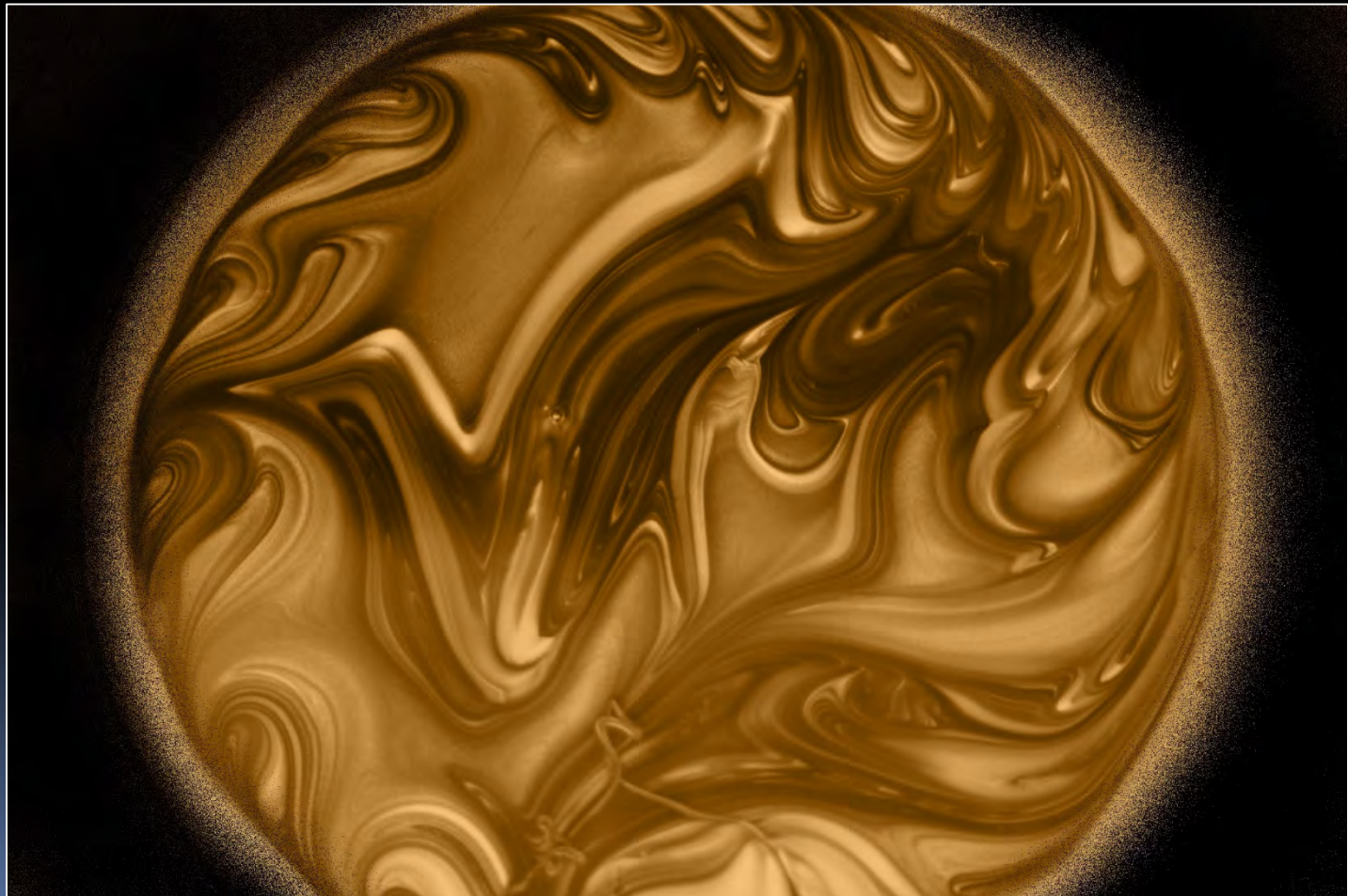
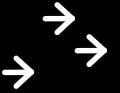
# Aesthetics of Beauty

Focus on forms, lines, textures, color.



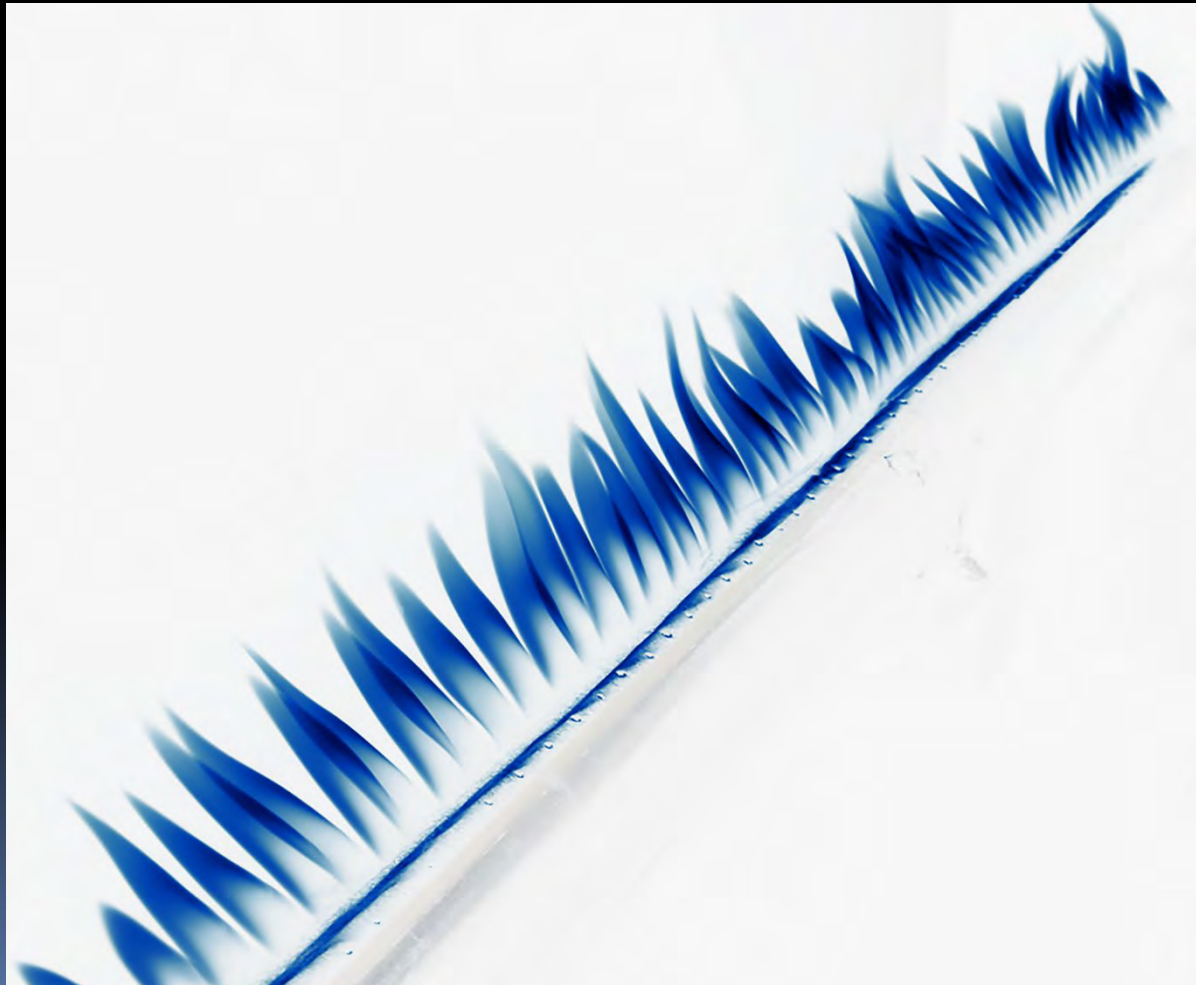
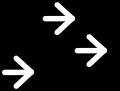
# Silver bottle wax, melting in a hot pot

Alex Unger  
Flow Vis course, Team Third assignment, Spring 2014



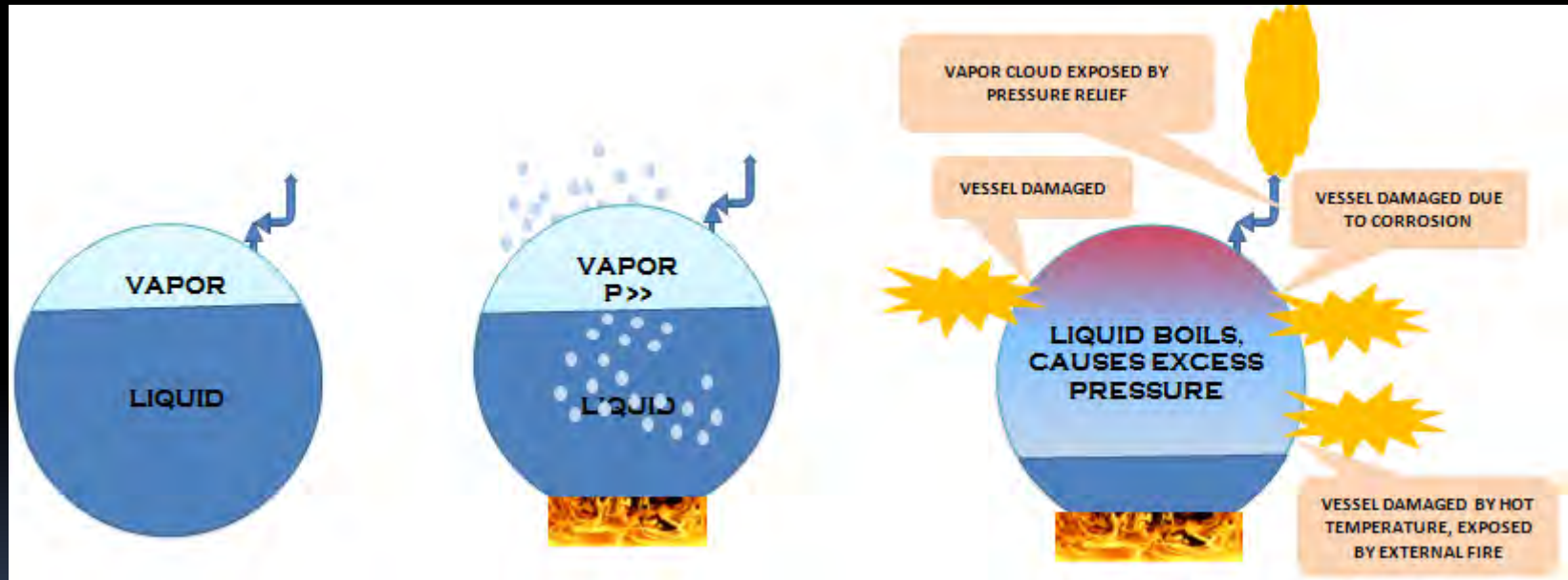
# Rubens tube, color reversed, excited by rock music

Aaron Zetley, Max Armstrong, Robert Gianella, Evan Blake, Byron Pullutasig.  
Flow Vis course, Team First, Fall 2019



# BLEVE = Boiling Liquid Expanding Vapor Explosion

Partial confinement leads to transition from a deflagration (ordinary flame) to detonation (supersonic combustion)



<https://imgur.com/gallery/GMoBTtq>





# Aesthetics of Oddness

Beauty, power and destruction are all very dramatic.  
Oddness is attractive, but not dramatic.

Familiar examples:

Oobleck (cornstarch and water)

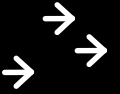
Mentos in soda/cola



# 99 proof peppermint schnapps burns briefly

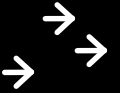
Kevin Oh

Flow Vis course, Get Wet assignment, Spring 2018



# Dyed shaving cream pushed through a shower drain cover

Cody Williams  
Flow Vis course, Team Second assignment, Spring 2018





# Uses of Aesthetics in Education and Outreach

- Aesthetics are a valid motivation for doing science
  - Gives pleasure, drives intrinsic motivation
  - Drives curiosity, can lead to 'lifelong learning'
- Works at many levels of intensity
  - Students can submit a 'Flow Vis of the Day' in class or on social media.
  - One or more assignments or workshop at interface of art and science.
  - Whole art and engineering or science course.  
**Facilitates 'transformative experience': expanded perception, increased affect, application outside of course.**




# Conclusion

What good are aesthetics?

Aesthetics are inextricably entwined with art.

Art is not something extra for times of prosperity, not an afterthought to necessary work.



Art and aesthetics give meaning to our lives, and are actually crucial for explaining / getting through the difficulty, racism, wars, and pressures of the world.

# Thank You

- Flow Vis course website
  - Flowvis.org
- <http://www.scoop.it/t/flow-visualization>
  - Curated list of professional artists using flow vis
- <https://www.facebook.com/groups/FlowVisualization/>
- <http://vimeo.com/groups/flowvis/videos>
- This material is based upon work supported by the National Science Foundation under Grant No. EEC-1240294