Colloquium - Brookhaven National Laboratory - December 9, 2025

Pratt

MICHIGAN STATE UNIVERSITY

APS FELLOW

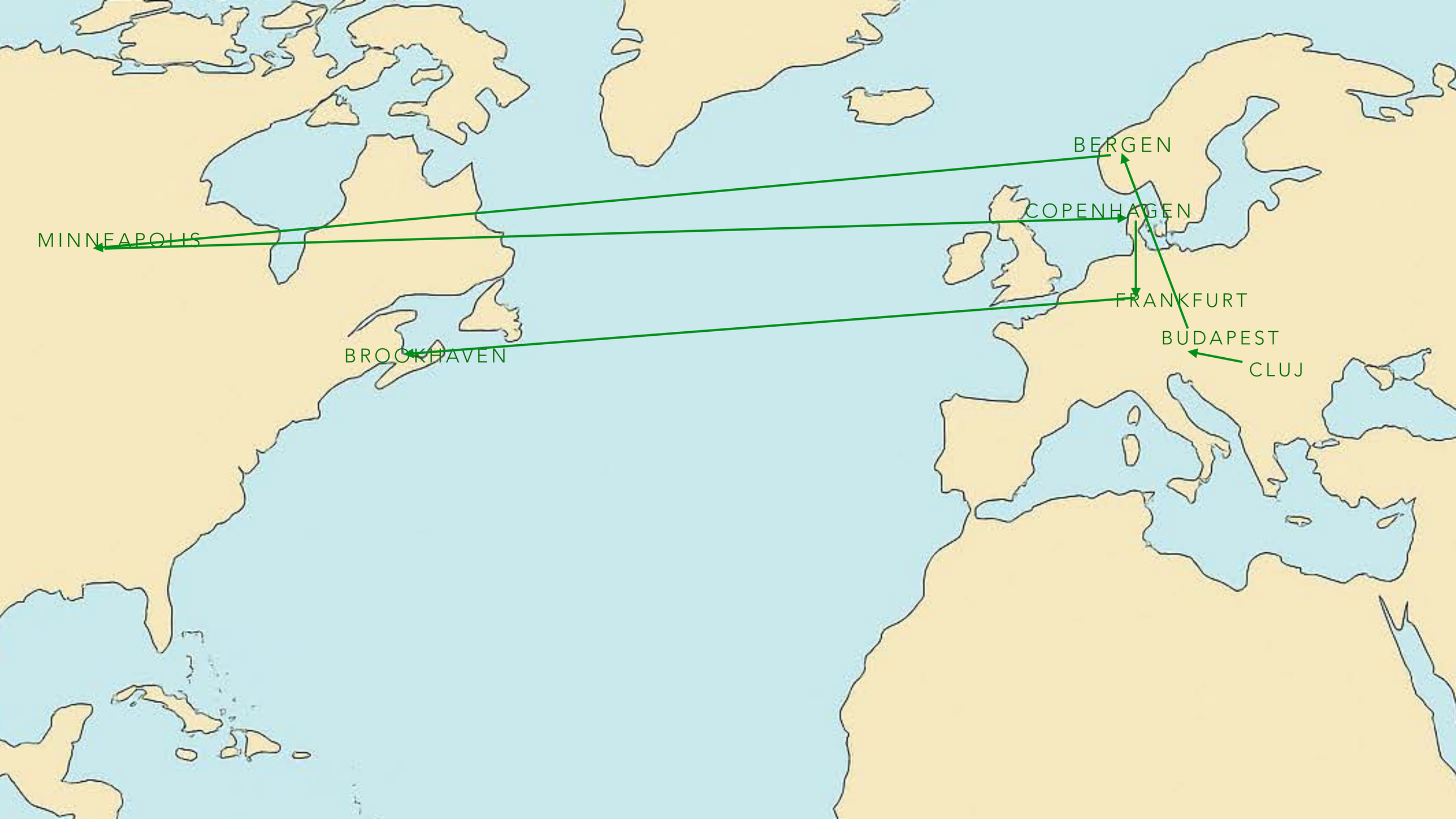
Ágnes Mócsy

Science as Connection: Blending Physics, Pedagogy, and Cinema

What does it mean to be human in science?

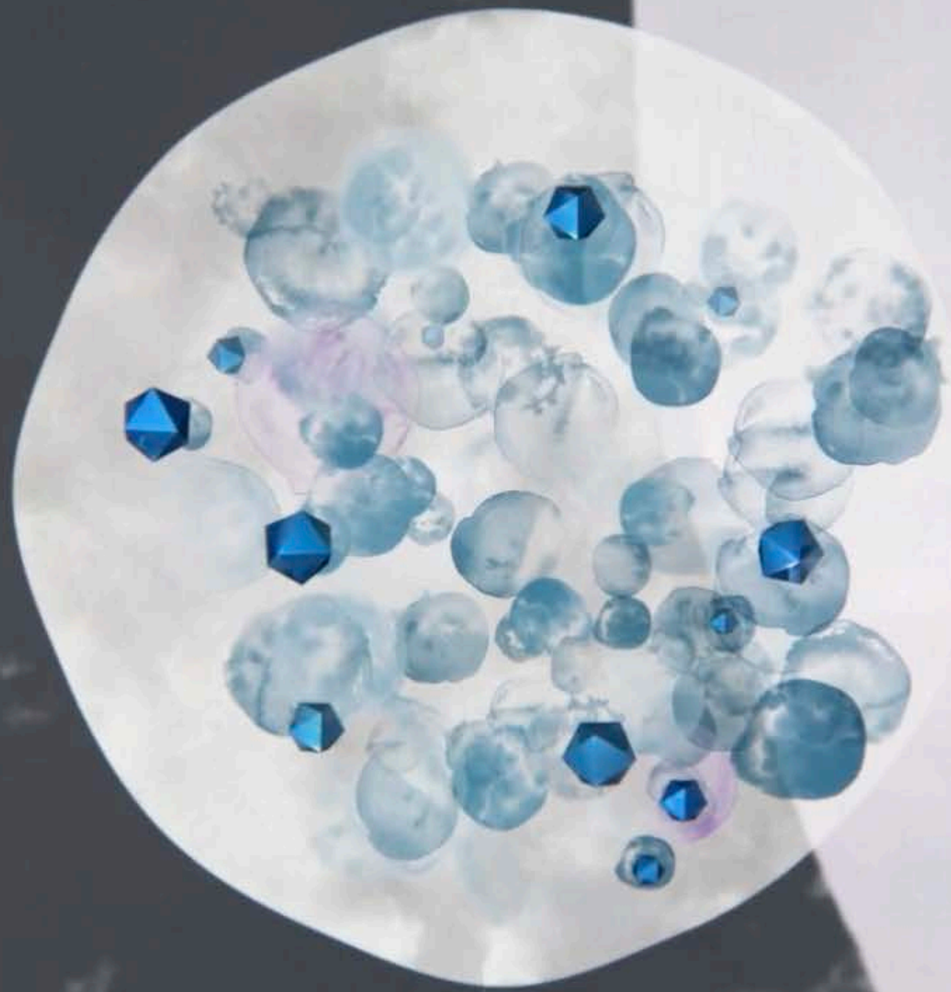
Transylvania

KOLOZSVÁR / CLUJ-NAPOCA, ROMANIA


BERGEN
COPENHAGEN
MINNEAPOLIS
FRANKFURT
BUDAPEST
BROOKHAVEN
CLUJ

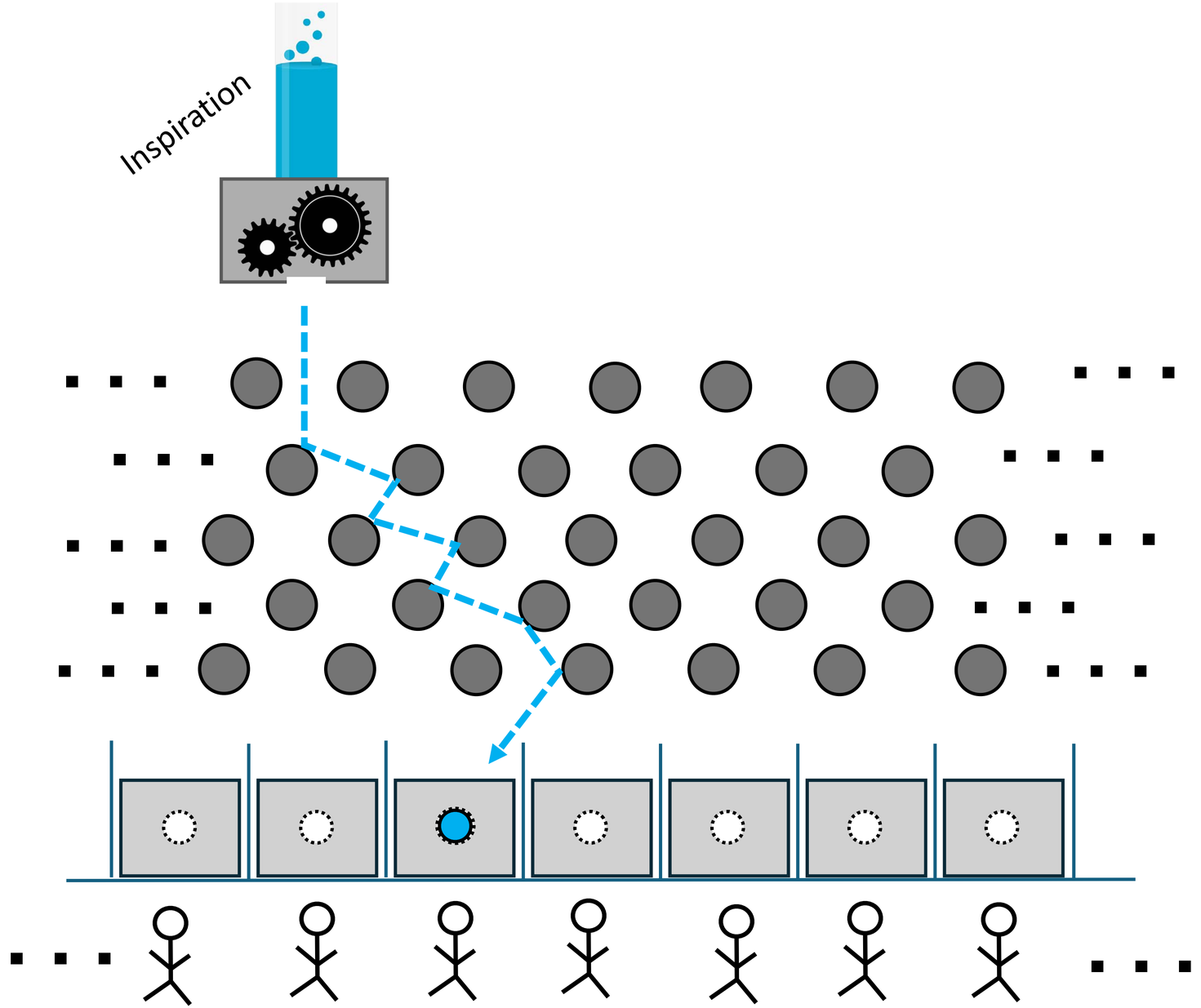

BROOKHAVEN NATIONAL LABORATORY

What was that defining moment that led you to physics ?

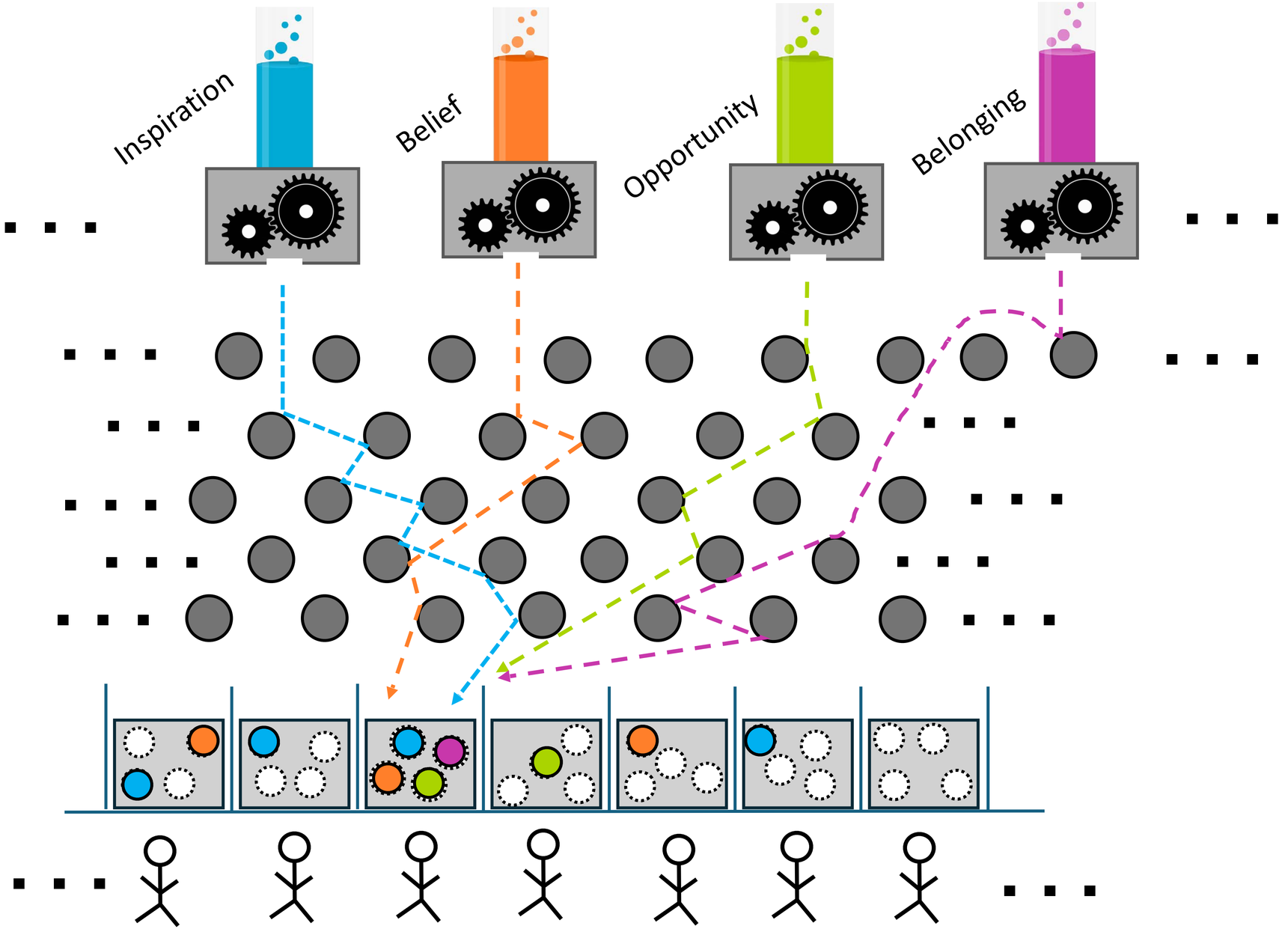


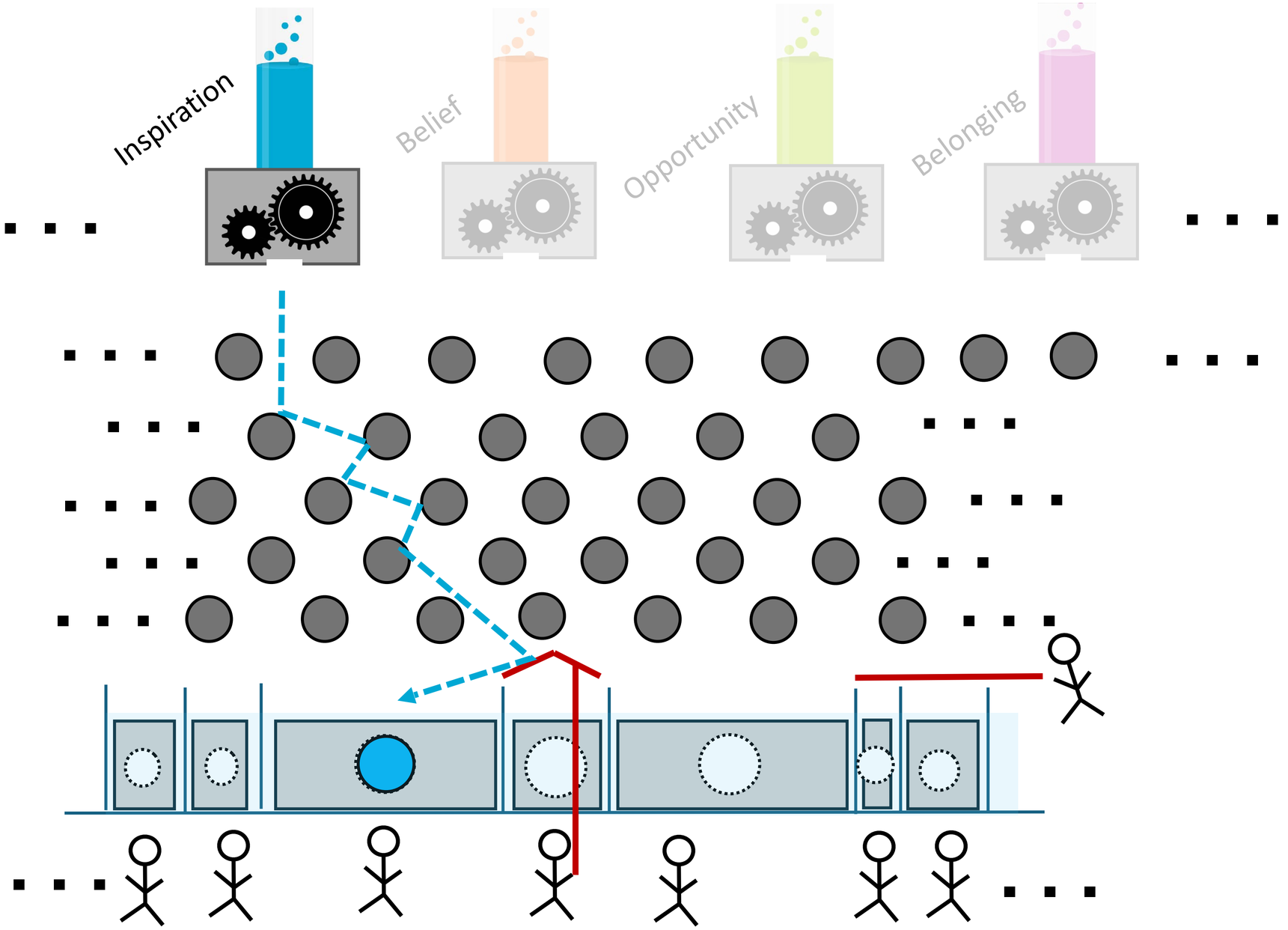
Music: “Alone” by Kyle Godbey

We are not just made of particles. We are made of stories.



Graphics: Pablo Giuliani


Inspiration
Belief
Opportunity
Belonging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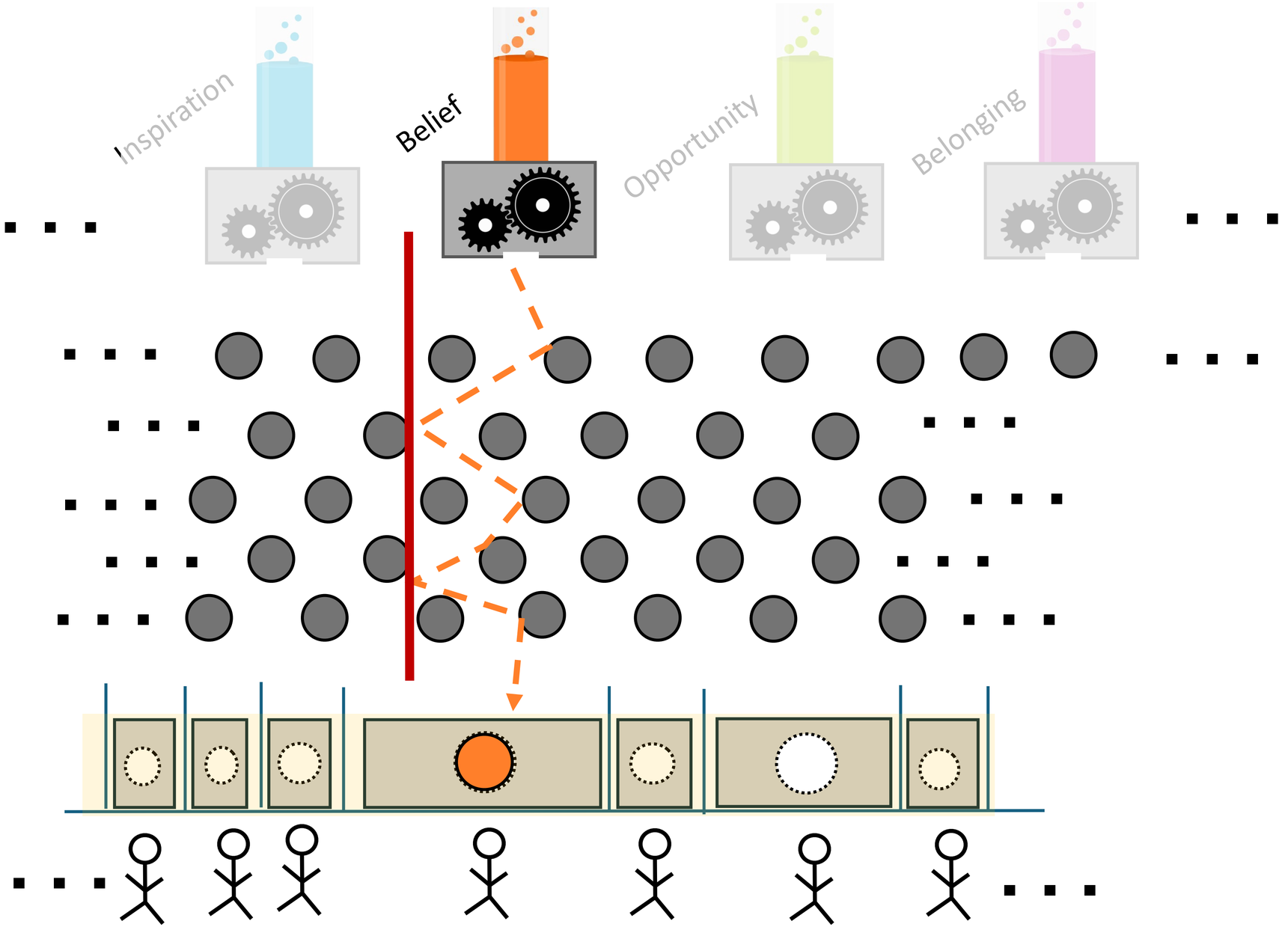
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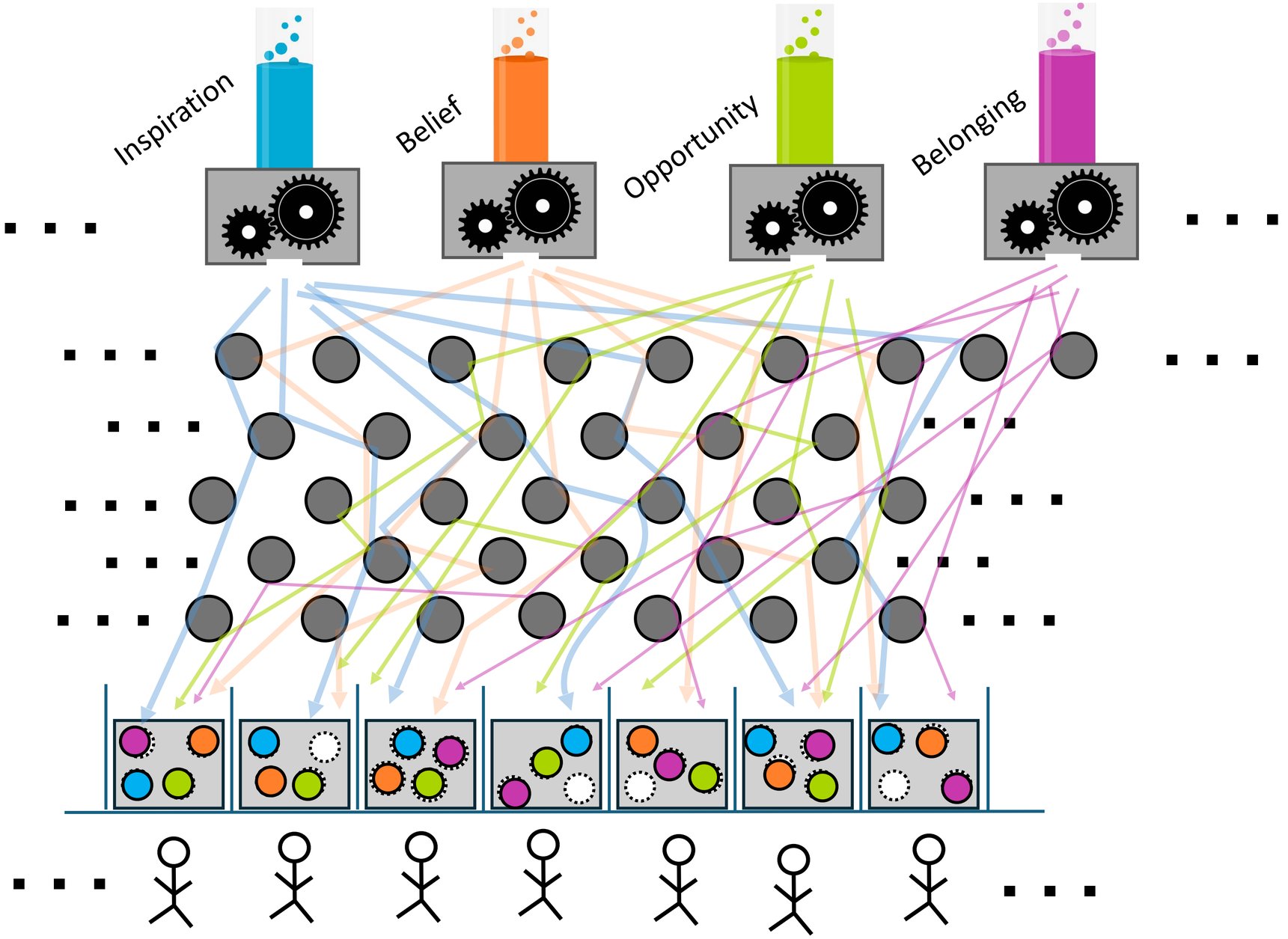
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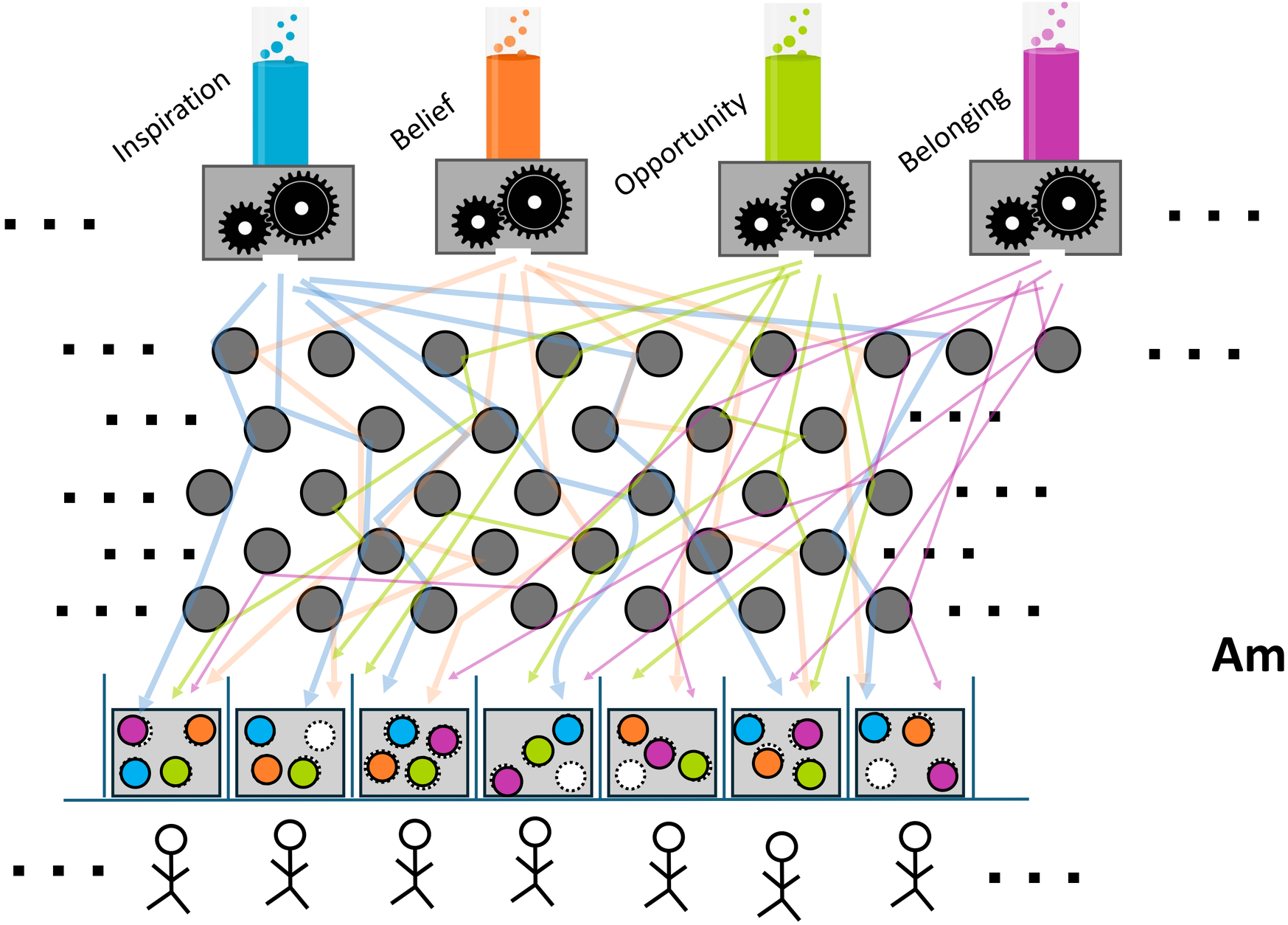
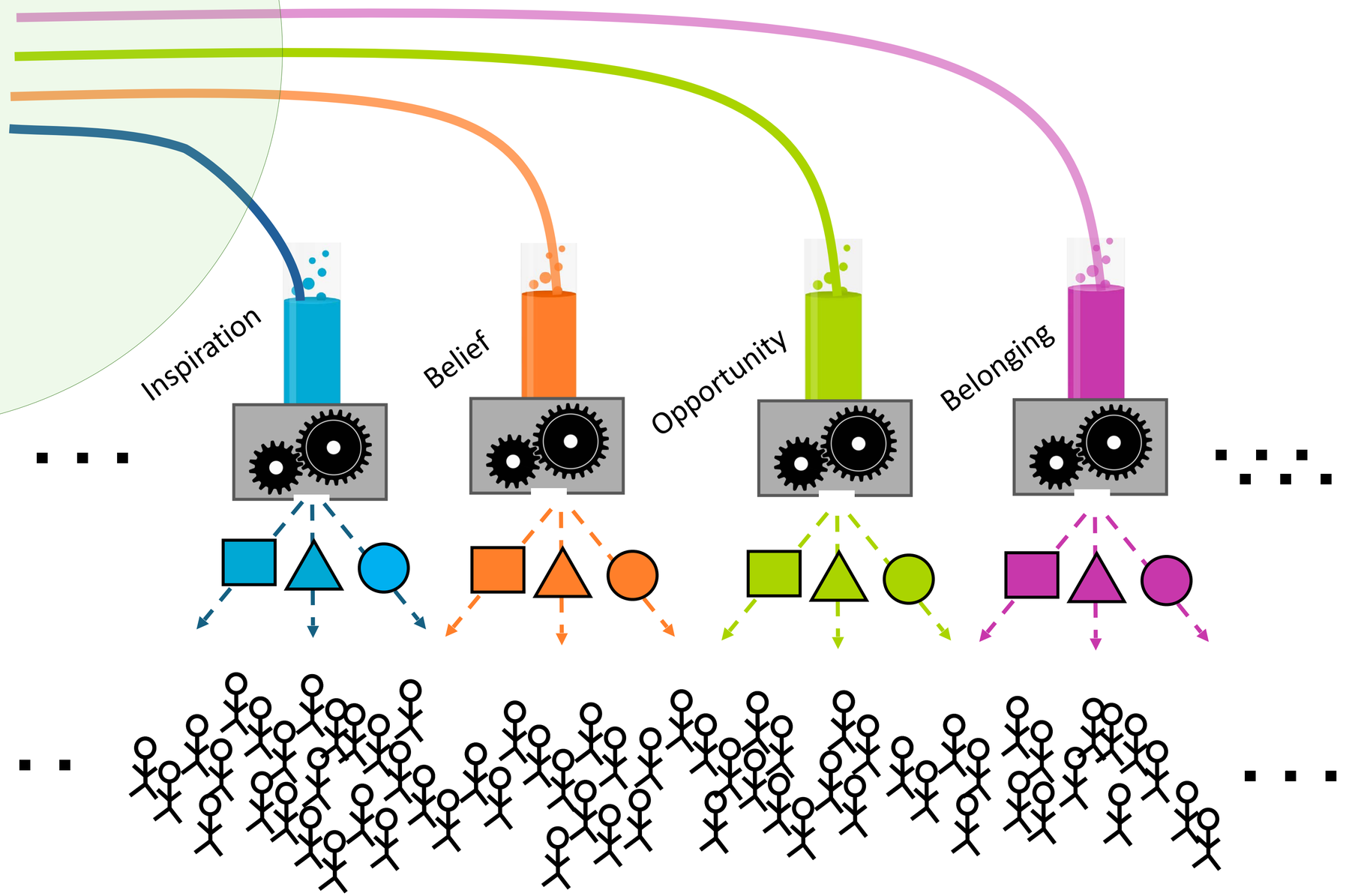


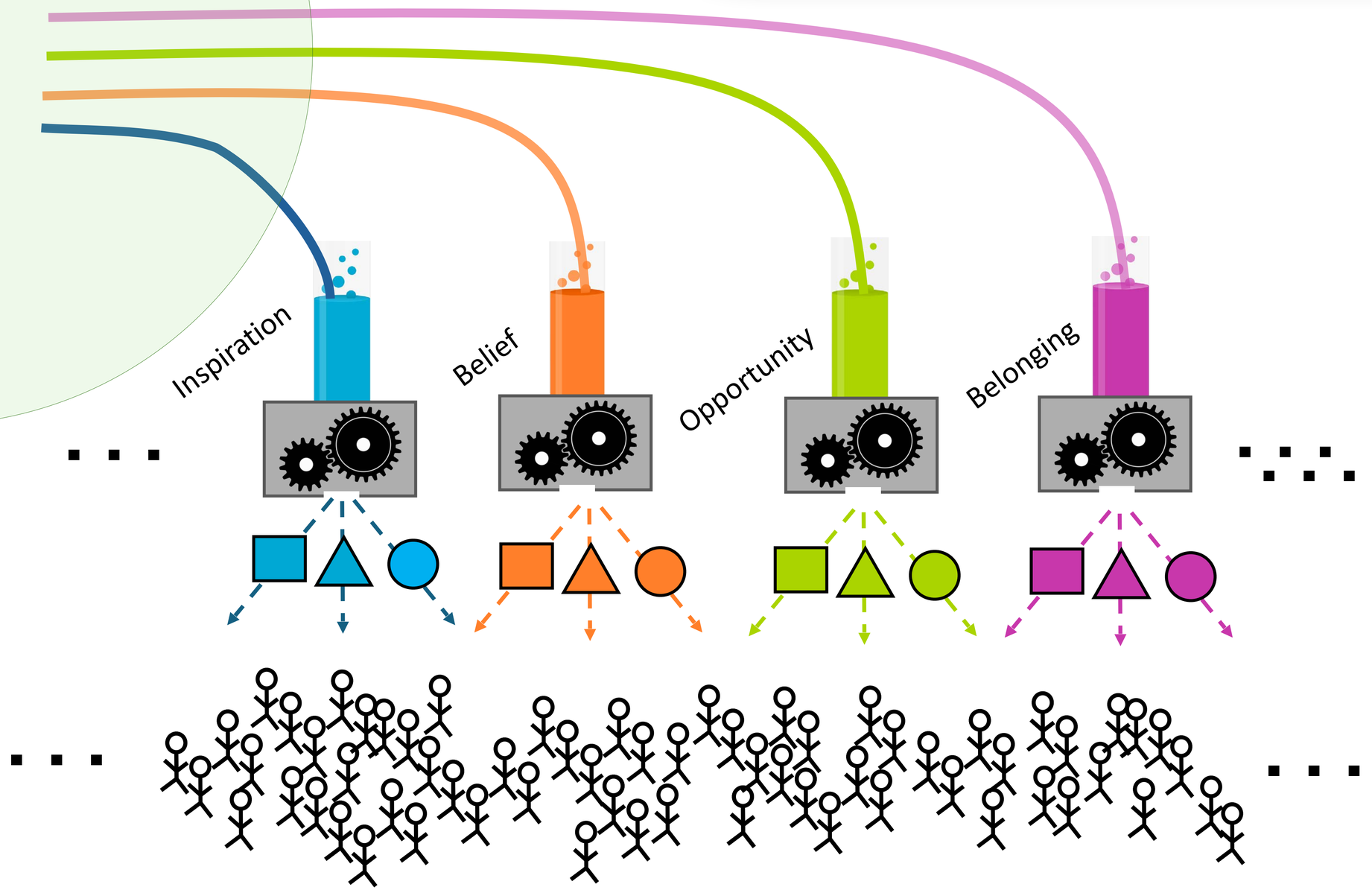
Amazing Goal

Science community



The Empowering Marbles Vision

Science community



How can we achieve this?

How can we achieve this?

- with storytelling

Oh, the stereotypes

what are the stereotypes about science and scientists

Stereotypes about science and scientists are often based on misconceptions or exaggerated portrayals. Some common ones include:

1. The Absent-Minded Genius

- **Perception**: Scientists are often depicted as brilliant but absent-minded, lost in their thoughts and oblivious to the real world.
- **Reality**: While focus is important in science, many scientists are practical and grounded in their daily lives.

2. Socially Awkward

- **Perception**: Scientists are often portrayed as socially inept, introverted, or unable to interact normally with people.
- **Reality**: Scientists come from all walks of life and have diverse personalities, many being socially active and outgoing.

3. Mad Scientist

- **Perception**: The “mad scientist” trope involves someone obsessed with dangerous experiments, disregarding ethics, or having a god complex (e.g., Frankenstein’s creator).
- **Reality**: Scientists are bound by ethical guidelines and work collaboratively to ensure their research benefits society.

4. Nerdy and Uncool

- **Perception**: Scientists are often depicted as "nerds" or "geeks," obsessed with niche topics and out of touch with popular culture or fashion.
- **Reality**: Many scientists are well-rounded individuals with diverse interests, including art, sports, and pop culture. There are even trendy, fashionable, and cool scientists.

5. Old, Male, and White

- **Perception**: The stereotype often portrays scientists as older white men in lab coats.
- **Reality**: The scientific community is becoming increasingly diverse, with more women, people of color, and young scientists taking leadership roles in various fields.

6. Cold and Unemotional

- **Perception**: Scientists are sometimes seen as emotionally detached, relying solely on logic and facts, without empathy or passion.
- **Reality**: Many scientists are passionate, deeply caring individuals driven by curiosity, a sense of wonder, and a desire to help humanity.

7. Lab Coat and Glasses

- **Perception**: Scientists are often visualized wearing lab coats, glasses, and working exclusively in labs with beakers and microscopes.
- **Reality**: While some scientists work in labs, many work in diverse environments, from field research to theoretical studies. Not all wear lab coats or glasses!

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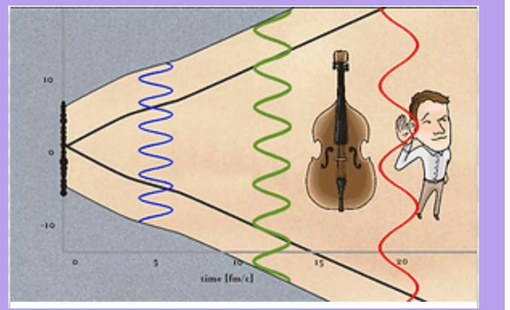
ChaptGPT

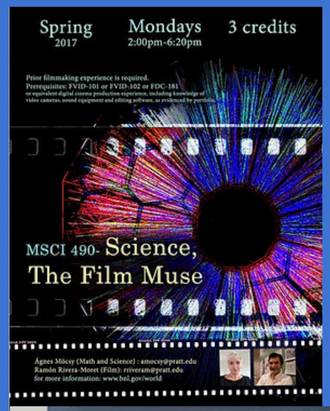
Stories matter in science, too

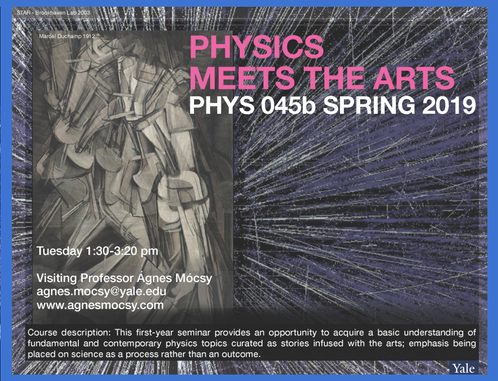
Science as Dialogue, not Isolation


Yale University
BROOKHAVEN
NATIONAL LABORATORY
Pratt

Physicist · Filmmaker · Communicator







THE BLOG 03/09/2016 06:24 pm ET | **Updated** Dec 06, 2017

The Lone Genius Paradigm and Our Infatuation With Intellectual Heroes

By Ágnes Mócsy

Image credit: Ágnes Mócsy/Young Kim

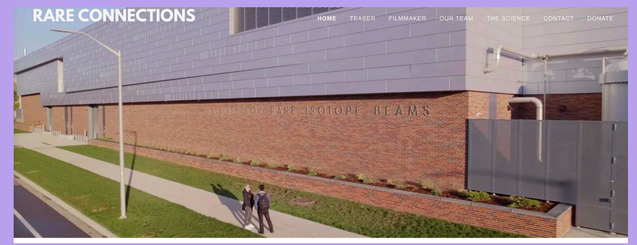
As a physicist musing about genius, I wonder whether I know any geniuses or whether the best physicists I know are just

'Glamorous Gluons': RHIC's Quark Gluon Plasma Through an Artist's Eyes

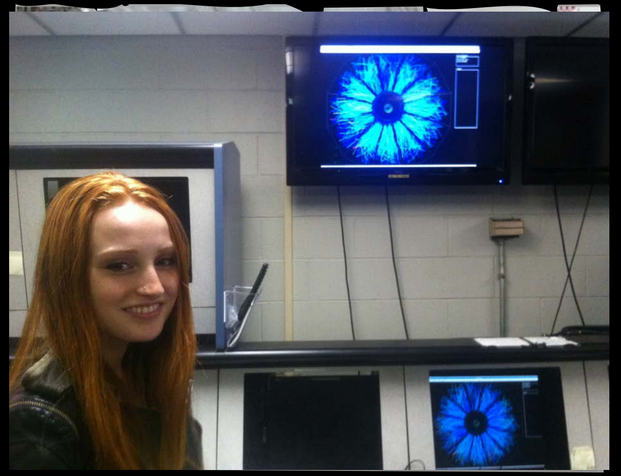
July 7, 2014

Artist Sarah Szabo (right) with pieces from her collection including "Quark Gluon Plasma Entering Hadronization," and her mentor Ágnes Mócsy , a theoretical physicist at RHIC and a professor at Pratt Institute.

When gold ions collide inside the Relativistic Heavy Ion Collider (RHIC) to replicate the conditions that existed just after



The Wow Factory



KAIJING WU THE LITTLE BANG HAT

GAO-MOCSY-WU PERFECT LIQUID SHIRT

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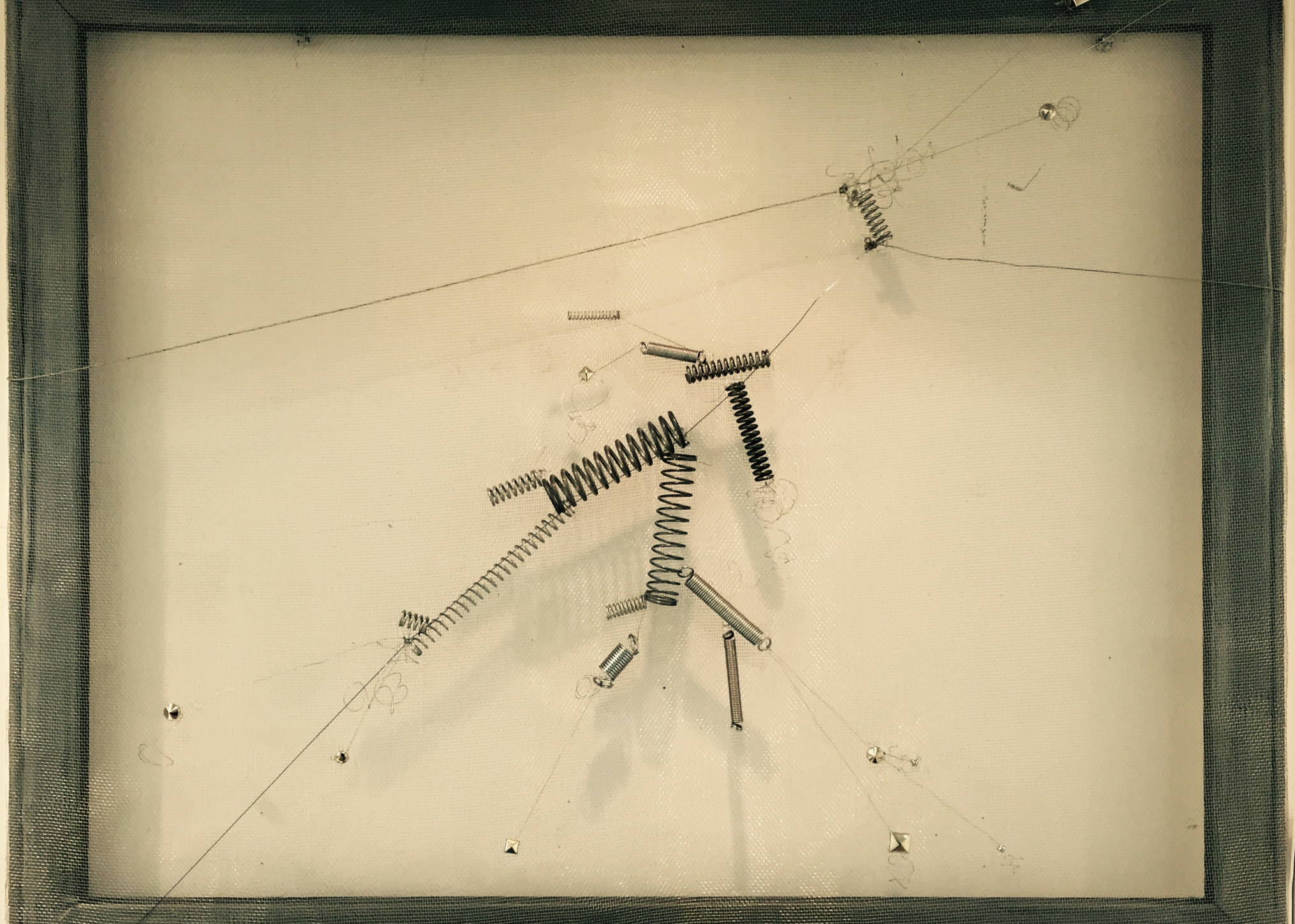
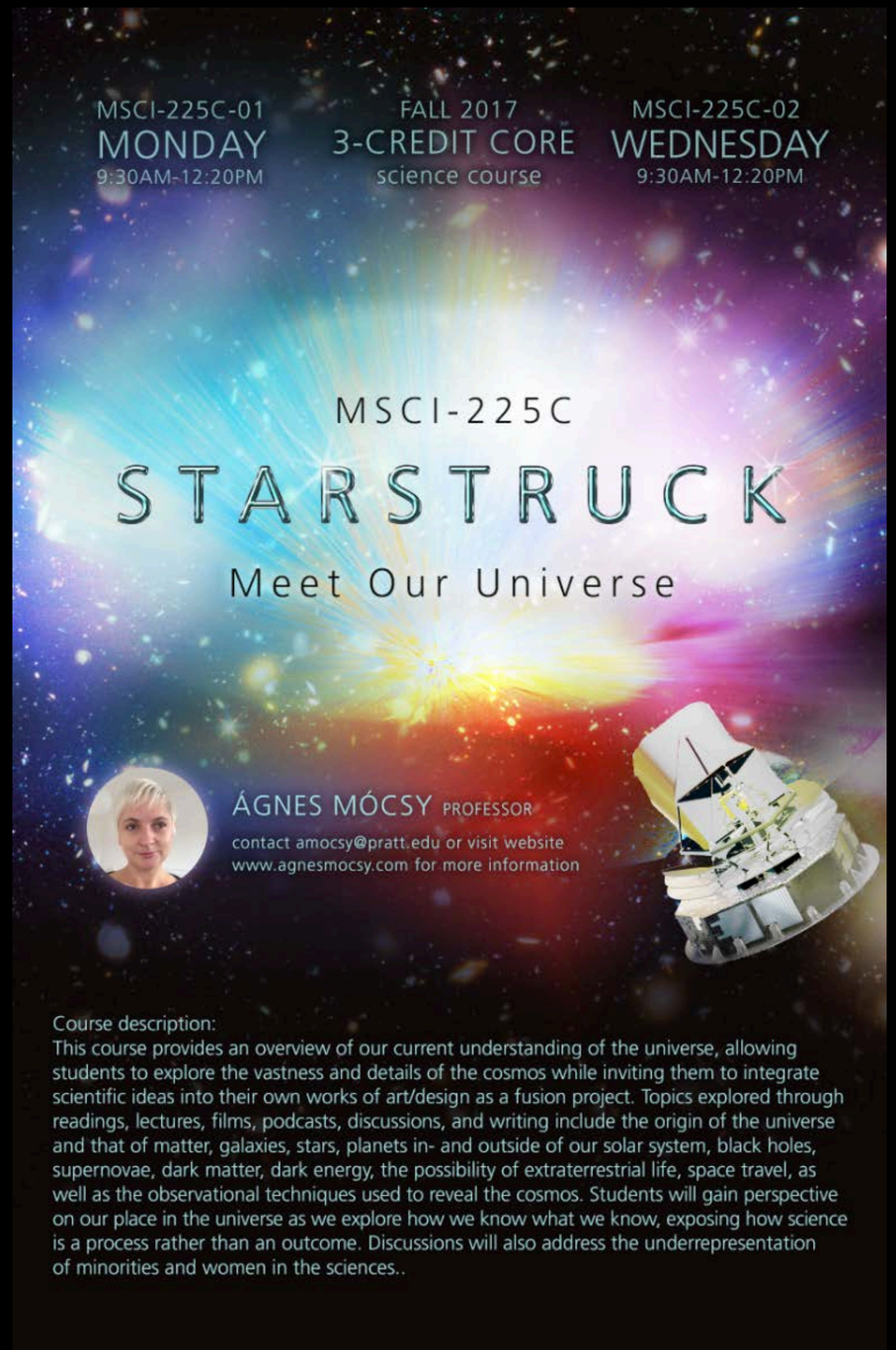
SARAH SZABO GLAMOROUS GLUONS SERIES



Pratt

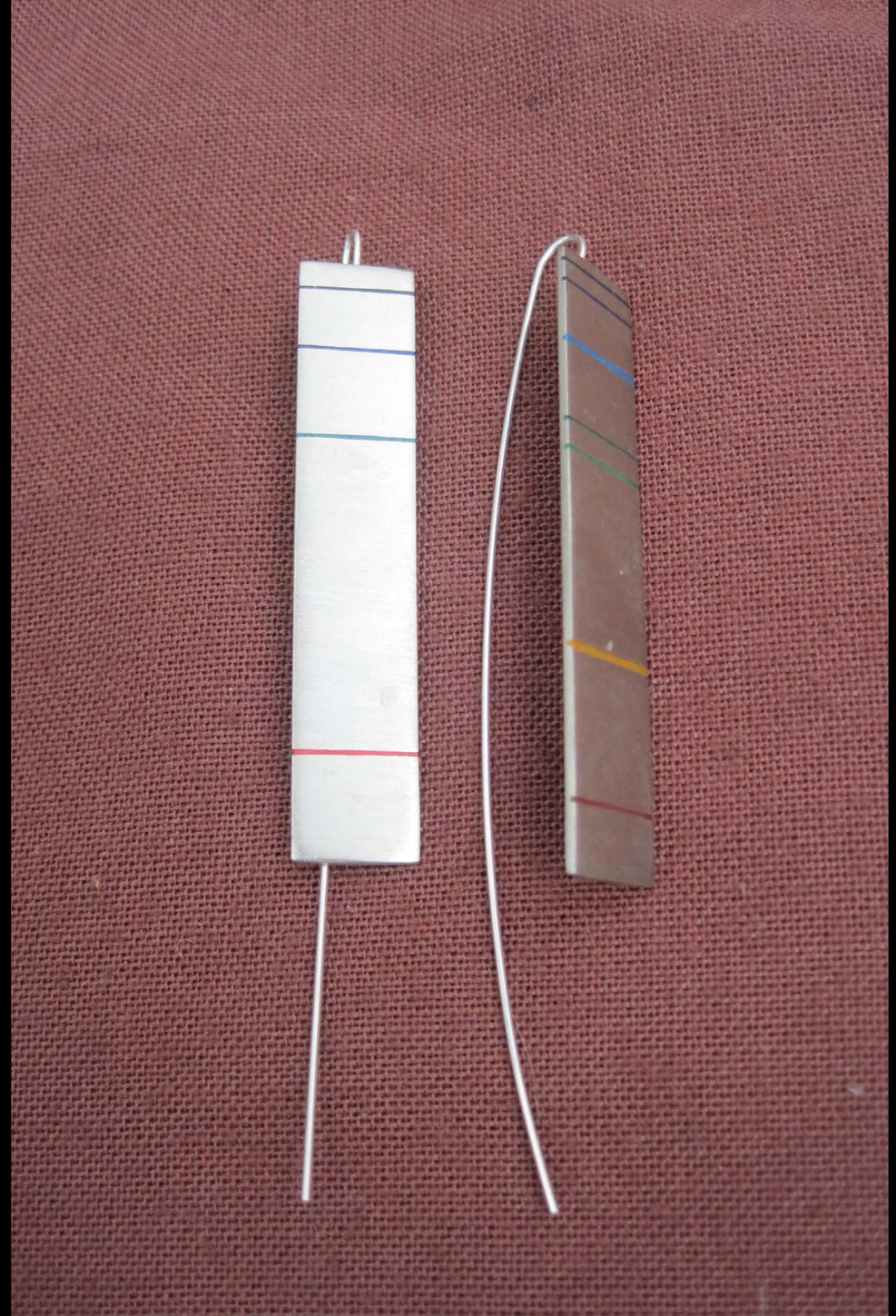


Starstruck: Meet Our universe

Science-Art Fusion Projects

Fusion Project Runway - the judges

ASHLEY LANDON SPECTROSCOPY



RUBY GERTZ "SHIFT" DRESS

ANJALI CHANDRASHEKAR

LUNA PLATES

ANJALI CHANDRASHEKAR LUNA PLATES

ANJALI CHANDRASHEKAR LUNA PLATES

EVA JENSEN MODELS OF THE ATOM

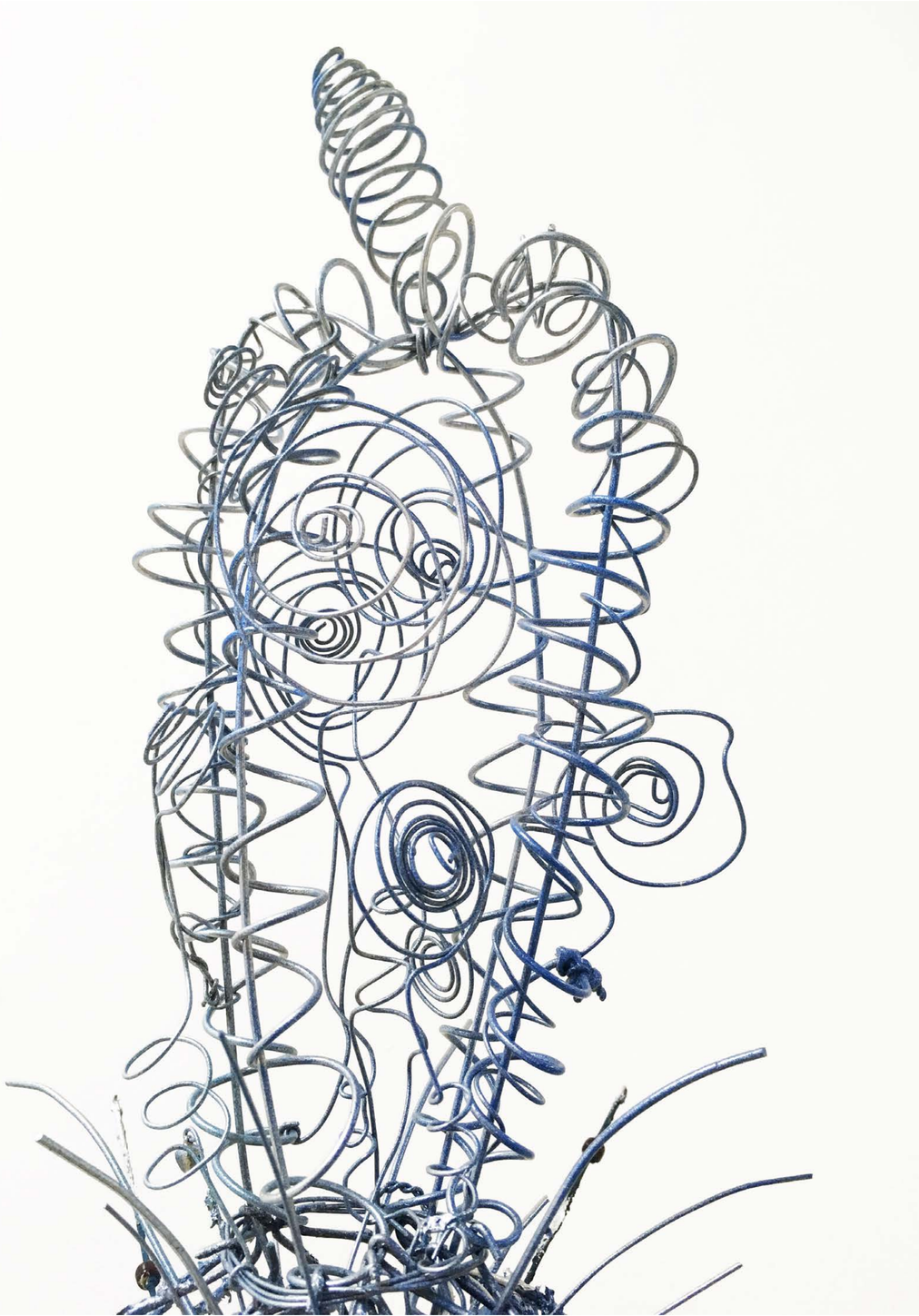
RAINE MANLEY ROBERTSON EXOPLANET DETECTION

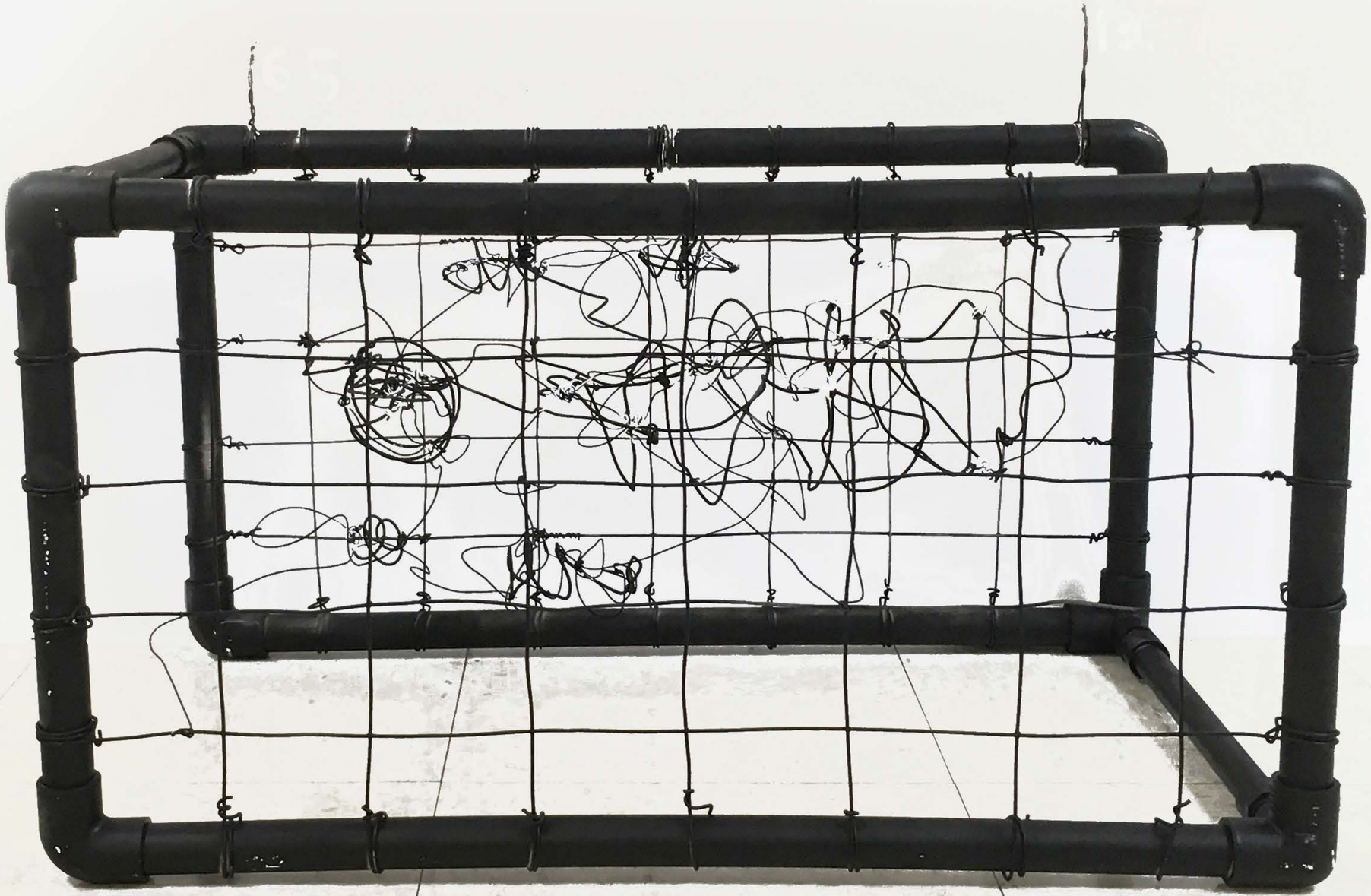
JI HYUN CHONG GALAXY BLOSSOM

REBECCA TRAVIS YOUR OWN STAR CLUSTER

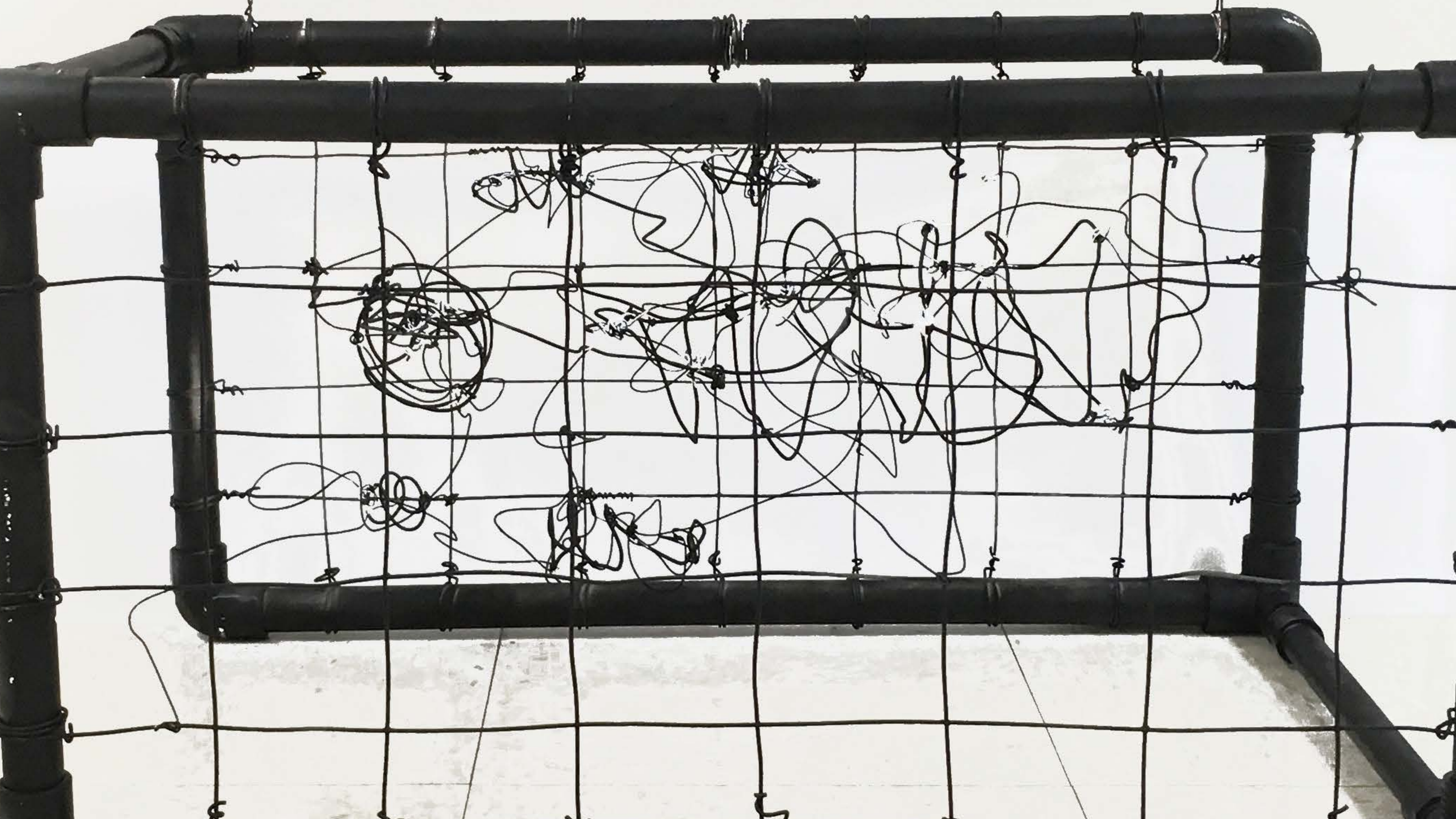
SOFIA ALBEE WE ARE STARSTUFF

SOFIA ALBEE WE ARE STARSTUFF





SPENCER STONEBERG THE COSMIC WEB OF MATTER



JOSH DIETZ UNIVERSAL ATTRACTION

Spring 2017 | Mondays 2:00pm-6:20pm | 3 credits

Prior filmmaking experience is required.
Prerequisites: FVID-101 or FVID-102 or FDC-181
or equivalent digital cinema production experience, including knowledge of
video cameras, sound equipment and editing software, as evidenced by portfolio.

MSCI 490-08 Science, The Film Muse

Ágnes Mócsy (Math and Science) : amocsy@pratt.edu
Ramón Rivera-Moret (Film): rriveram@pratt.edu

Course Description:
This course is a joint study of cutting-edge scientific research and film theory and practice.
It will explore the conceptual connections between science and film, how scientific research and filmmaking provide ways of envisioning the world. We will visit state-of-the-art research facilities, including the world's most versatile atom smasher, the particle accelerator that re-creates the conditions present a fraction of a second after the birth of the universe, and the 3-acre Xray machine that images matter at the scale of atoms. In connection with these visits we will study the science done at the facilities, and the process of science, as well as filmmakers and genres that foreground inquiry, experimentation and reflection. Readings by filmmakers, theorists and critics will serve as a springboard and counterpoint for your own film projects. Students will produce short videos in response to scientific ideas, the facilities, and the scientists.
for more information: www.bnl.gov/world

Pratt Science, the Film Muse

STAR - Brookhaven Lab 2003

Marcel Duchamp 1912

PHYSICS MEETS THE ARTS

PHYS 045b SPRING 2019

Tuesday 1:30-3:20 pm

Visiting Professor Ágnes Mócsy
agnes.mocsy@yale.edu
www.agnesmocsy.com

Course description: This first-year seminar provides an opportunity to acquire a basic understanding of fundamental and contemporary physics topics curated as stories infused with the arts; emphasis being placed on science as a process rather than an outcome.

Yale

Yale University

– first-year *“Physics Meets the Arts”* students in the Yale University Art Gallery

photo credit: YUAG

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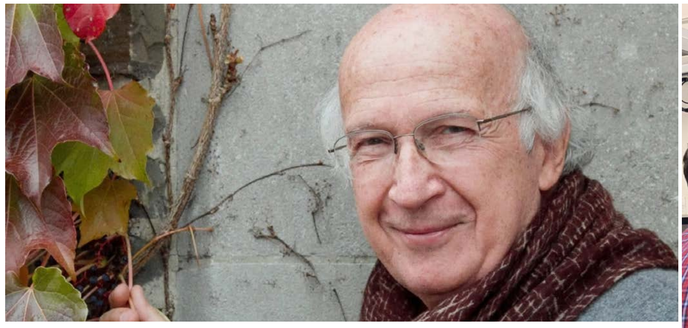


– Roald Hoffmann

– David Moore

– Reina Maruyama

– Tim Otto Roth

– Consensus

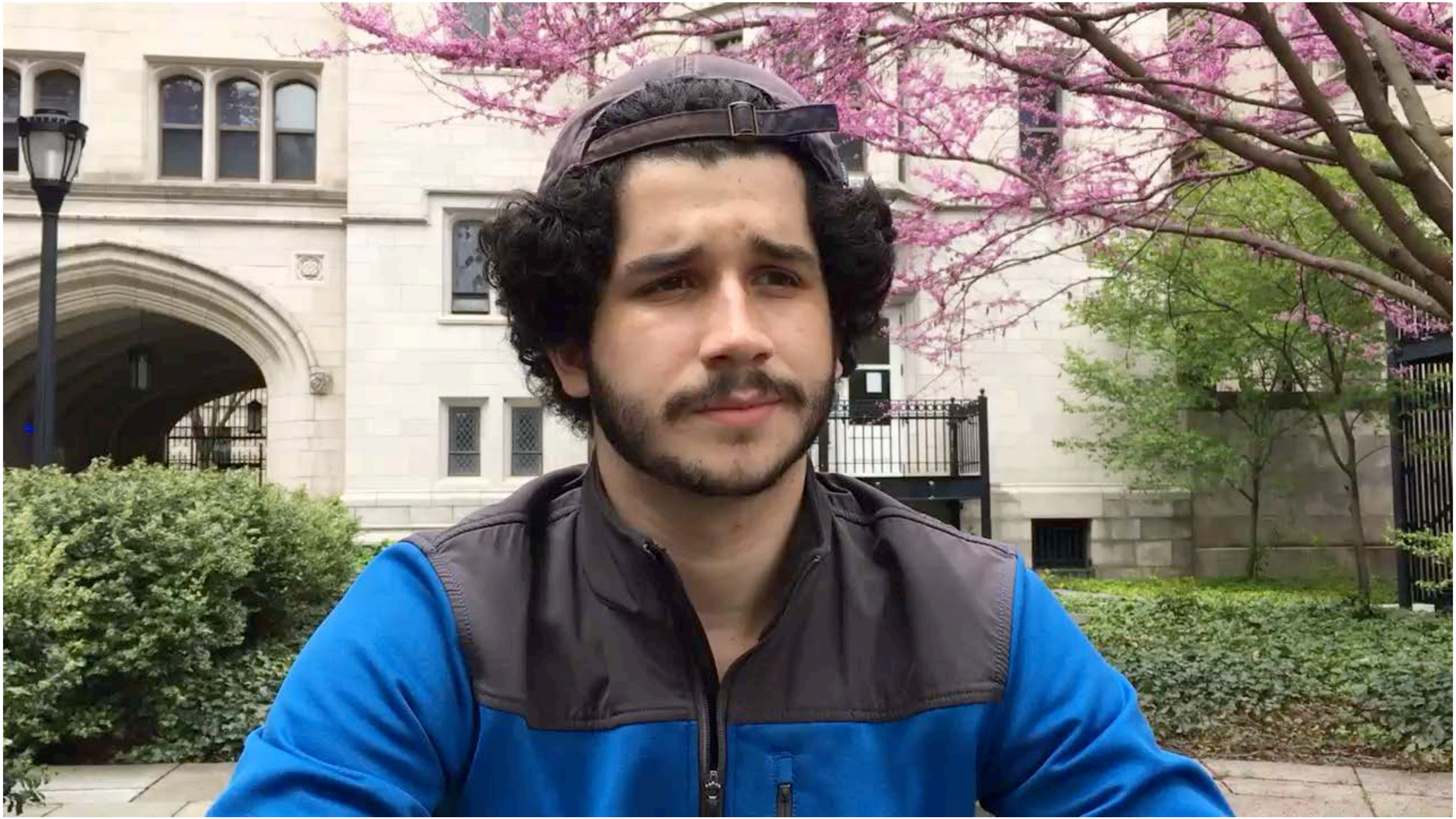
– Karyl Evans

– Paul Noel

– Stephen Irons


PHYSICS
MEETS THE ARTS
PHYS 045 SPRING 2019
Professor Ágnes Mócsy

photo credit: YUAG

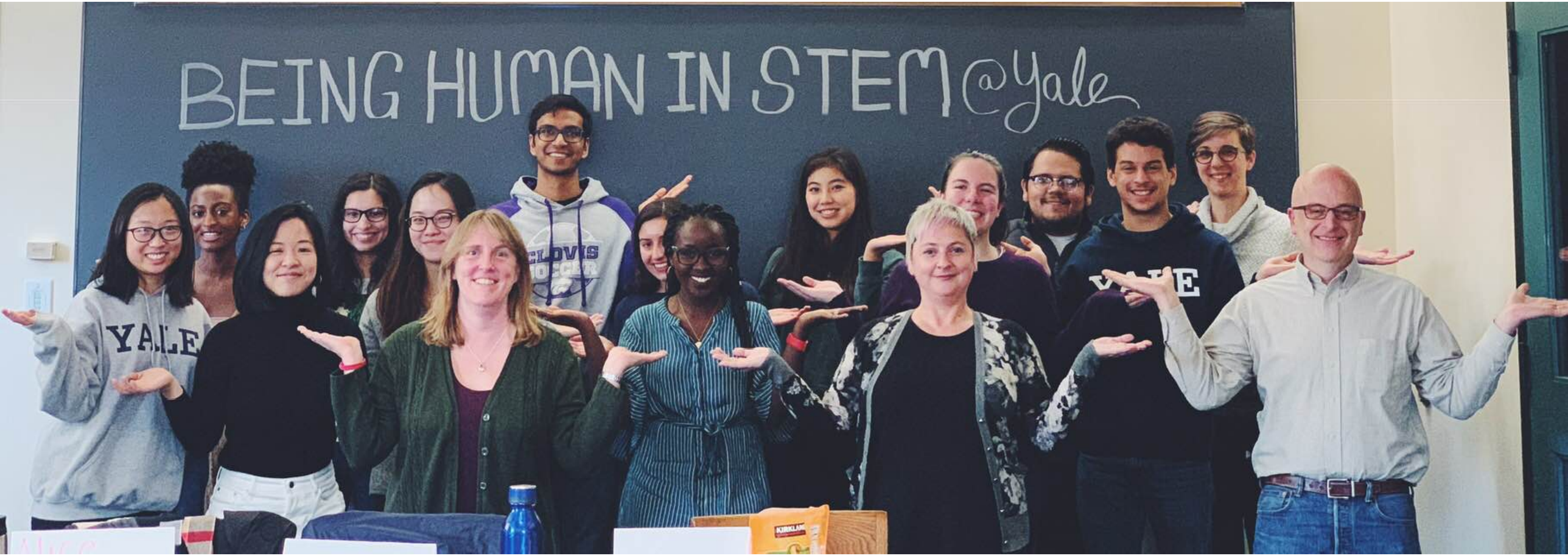


SEBASTIAN ROIZEN-RODRIGUEZ

When You Wish (the Pain Away) Upon a Star

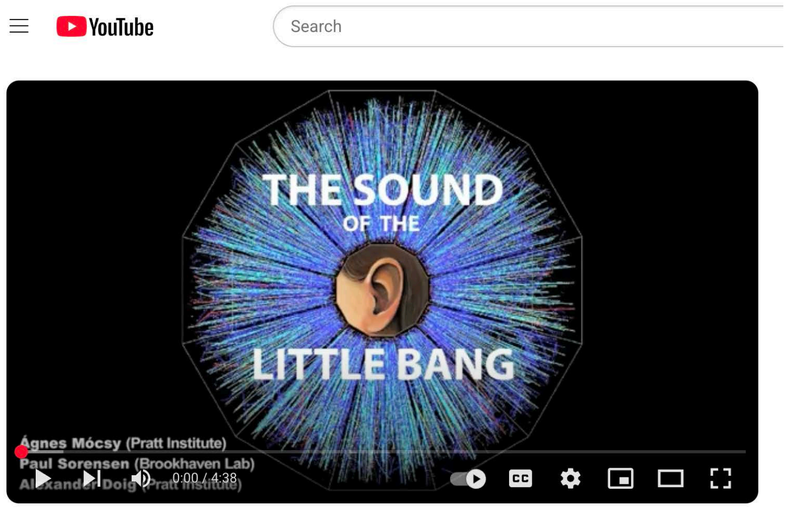

EXIT

Yale University

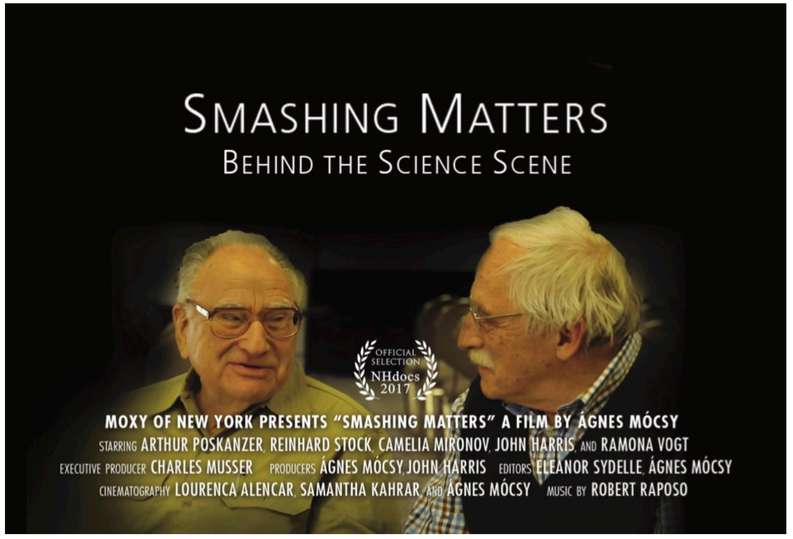


…. examining how diverse personal backgrounds, factors of gender, race, sexuality, religion, and economic circumstances shape the STEM experience at Yale and nationally

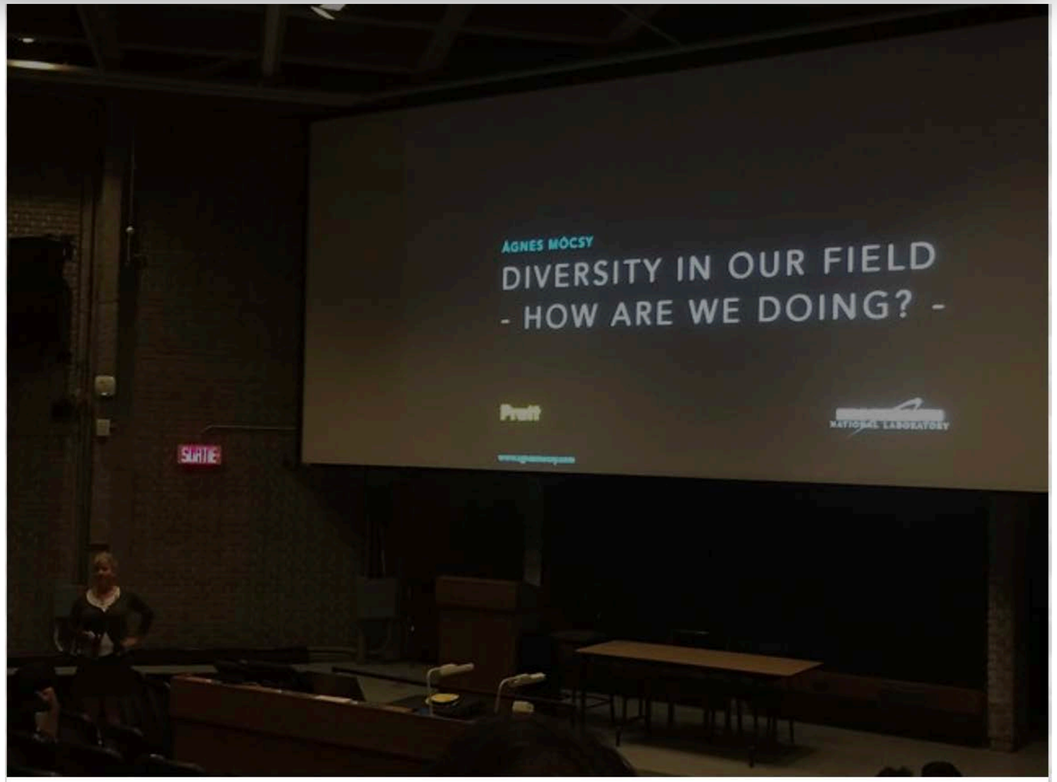
Stories towards “public”



The Sound of the Little Bang



Stories within science



Plenary Talk on Diversity

3 July 2015
Diversity in gender and race in the field of physics, and how are we doing on it, is discussed in Montreal, Canada. See the talk.

Entering Cinema

SMASHING MATTERS

BEHIND THE SCIENCE SCENE

OFFICIAL SELECTION
NHdocs 2017

MOXY OF NEW YORK PRESENTS "SMASHING MATTERS" A FILM BY ÁGNES MÓCSY

STARRING ARTHUR POSKANZER, REINHARD STOCK, CAMELIA MIRONOV, JOHN HARRIS, AND RAMONA VOGT

EXECUTIVE PRODUCER CHARLES MUSSER PRODUCERS ÁGNES MÓCSY, JOHN HARRIS EDITORS ELEANOR SYDELLE, ÁGNES MÓCSY

CINEMATOGRAPHY LOURENCA ALENCAR, SAMANTHA KAHRAR, AND ÁGNES MÓCSY MUSIC BY ROBERT RAPOSO

Rare Connections

Facility for Rare Isotope Beams

FRIB

MICHIGAN STATE UNIVERSITY

WKAR PBS npr

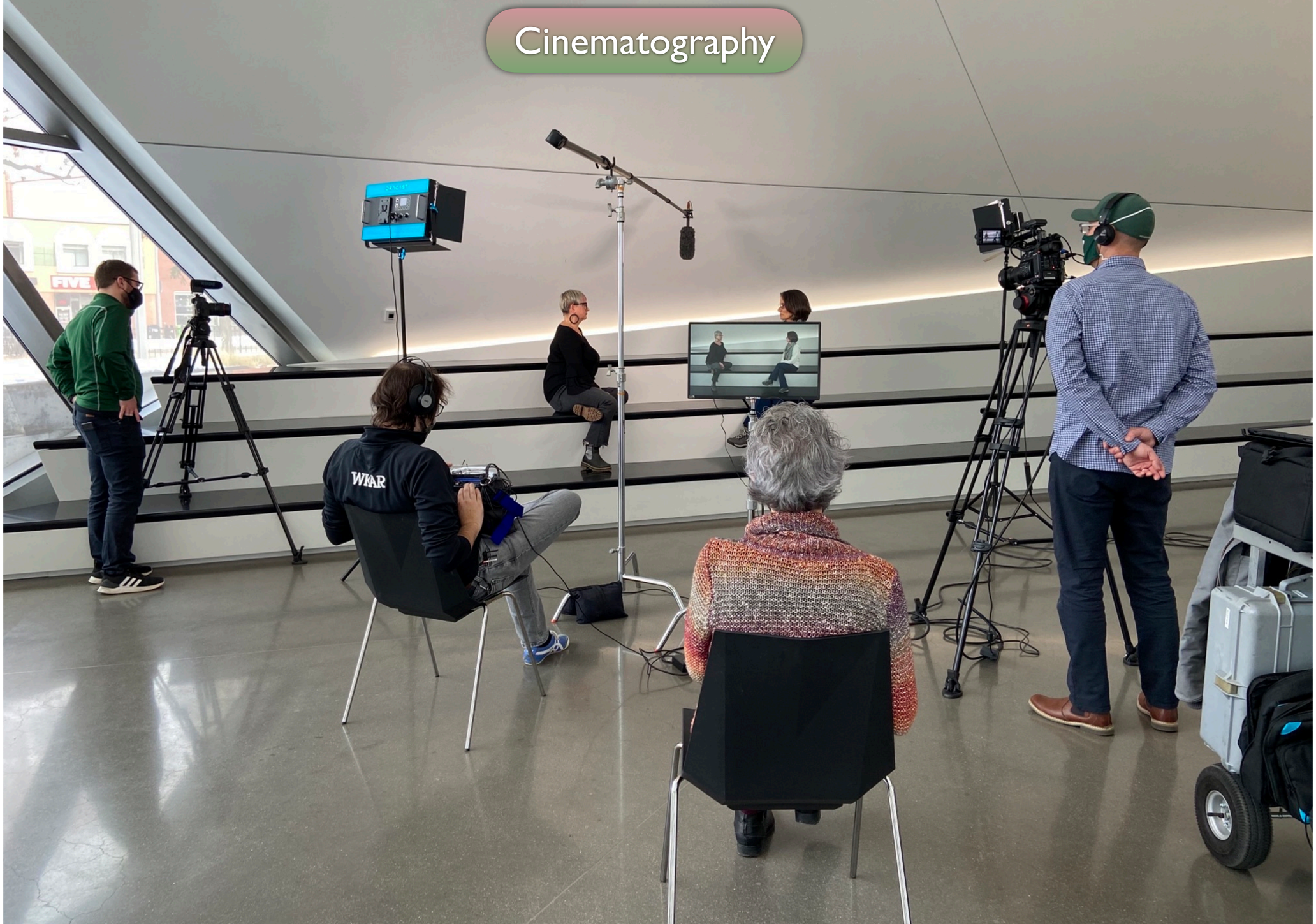
“Rare Connections” is about people, about seeing science in a new, enriched way, it’s about making its human side visible.

… it’s art that invites conversations, opens doors to a broader audience, allows society to see itself reflected in the stories …

Physics is emotional

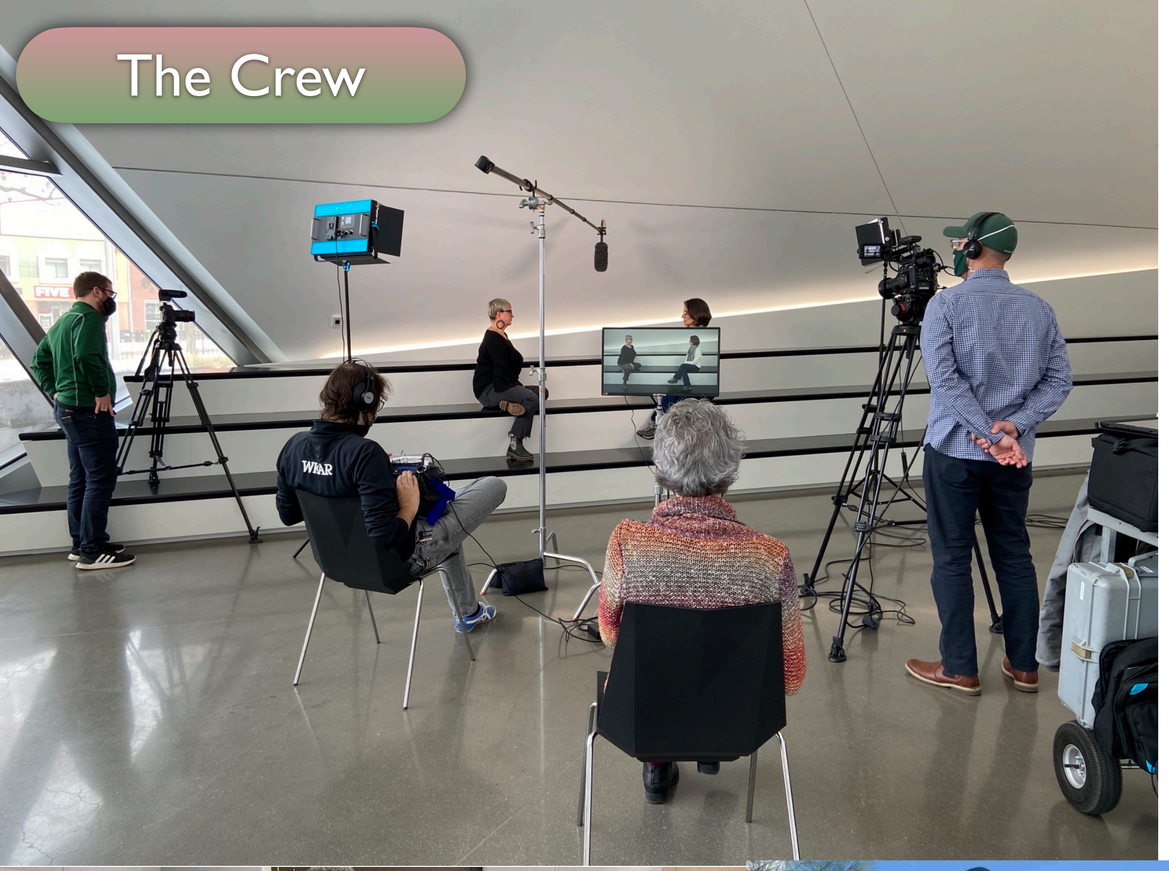
Making the Film

Cinematography




HDR

The Crew

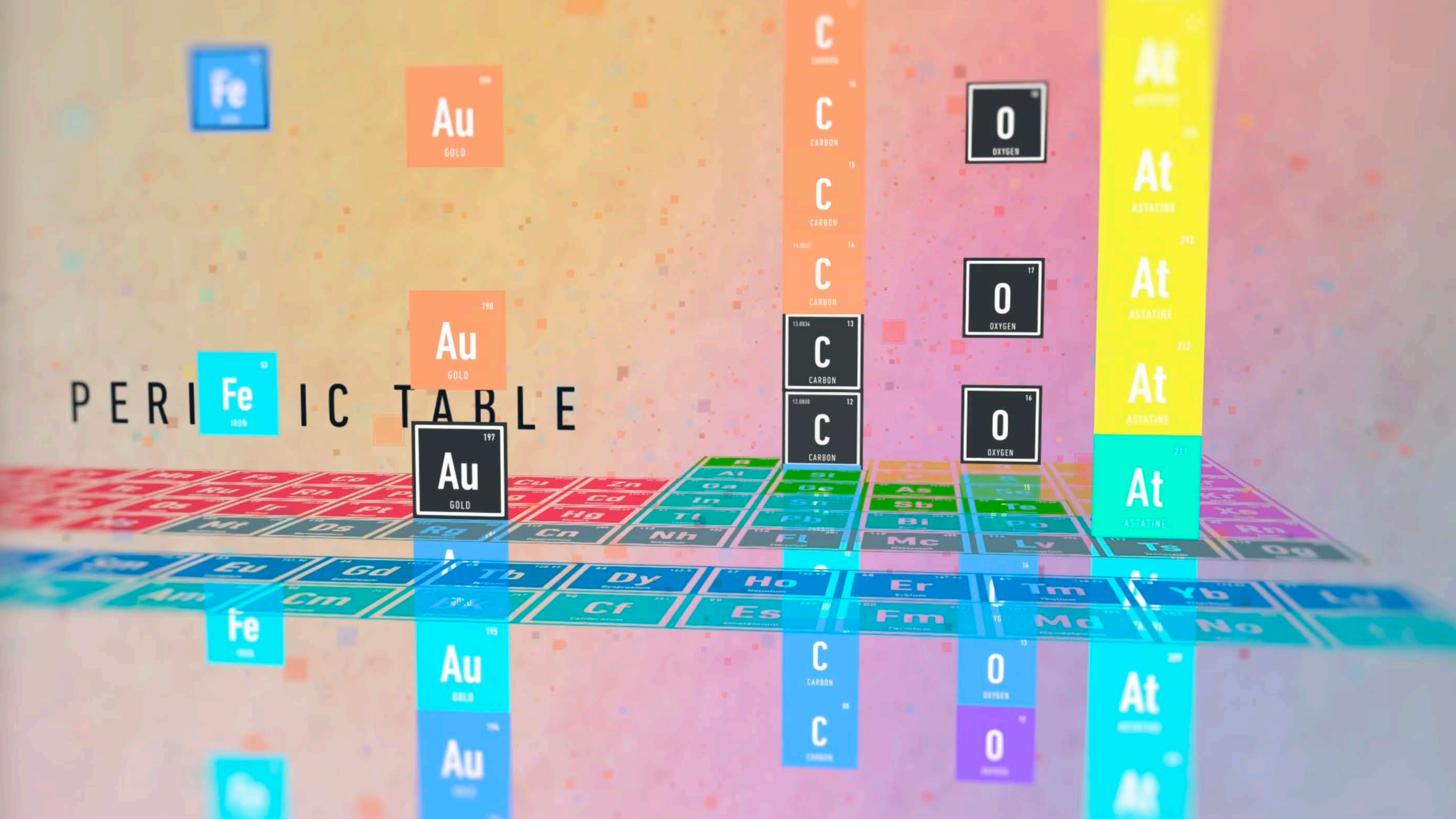


Original Score

200+ hours → 2h 14 min

Editing

Science is accessible if we make it accessible


PERI IC TABLE
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IRON
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CARBON
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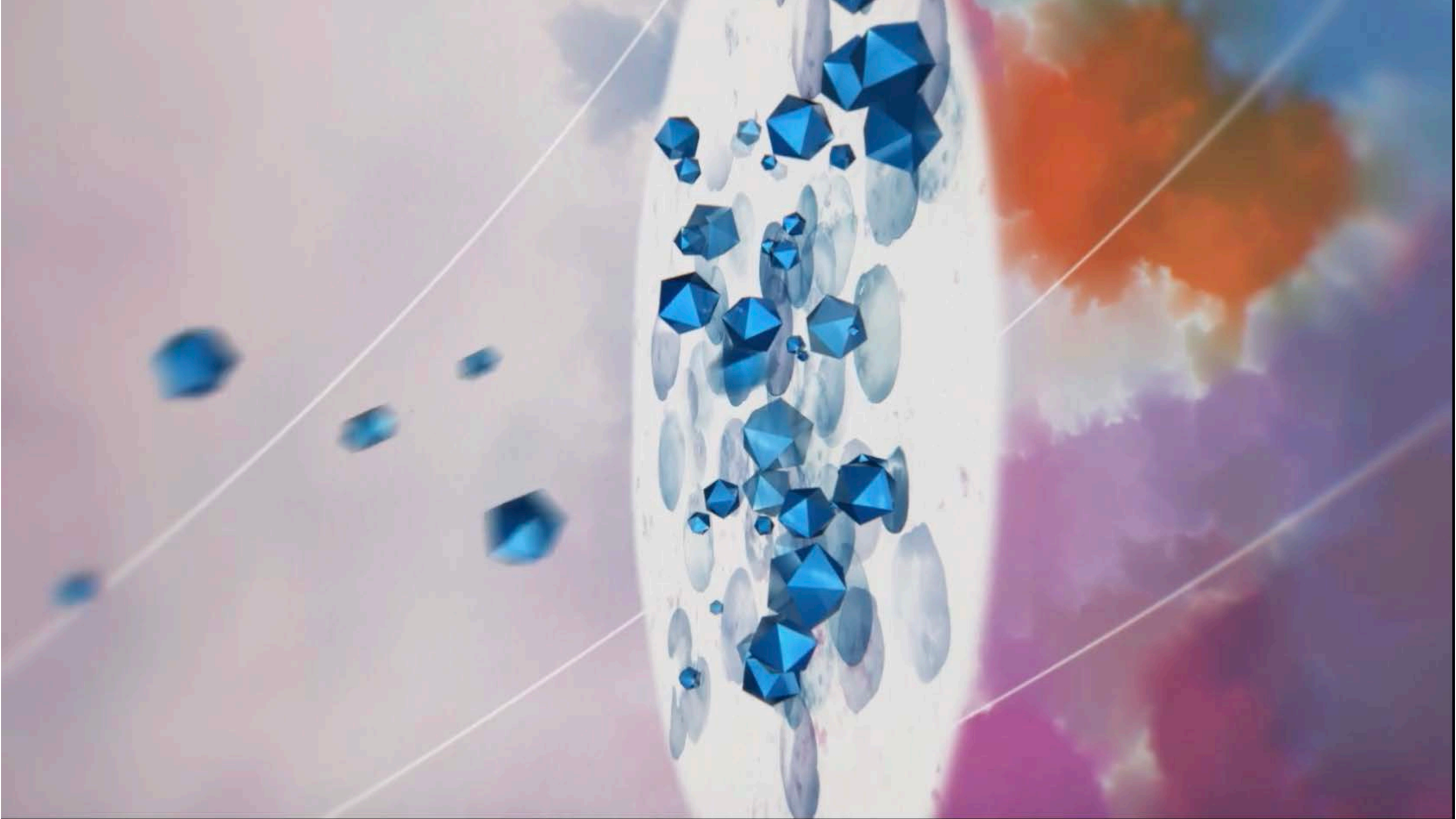

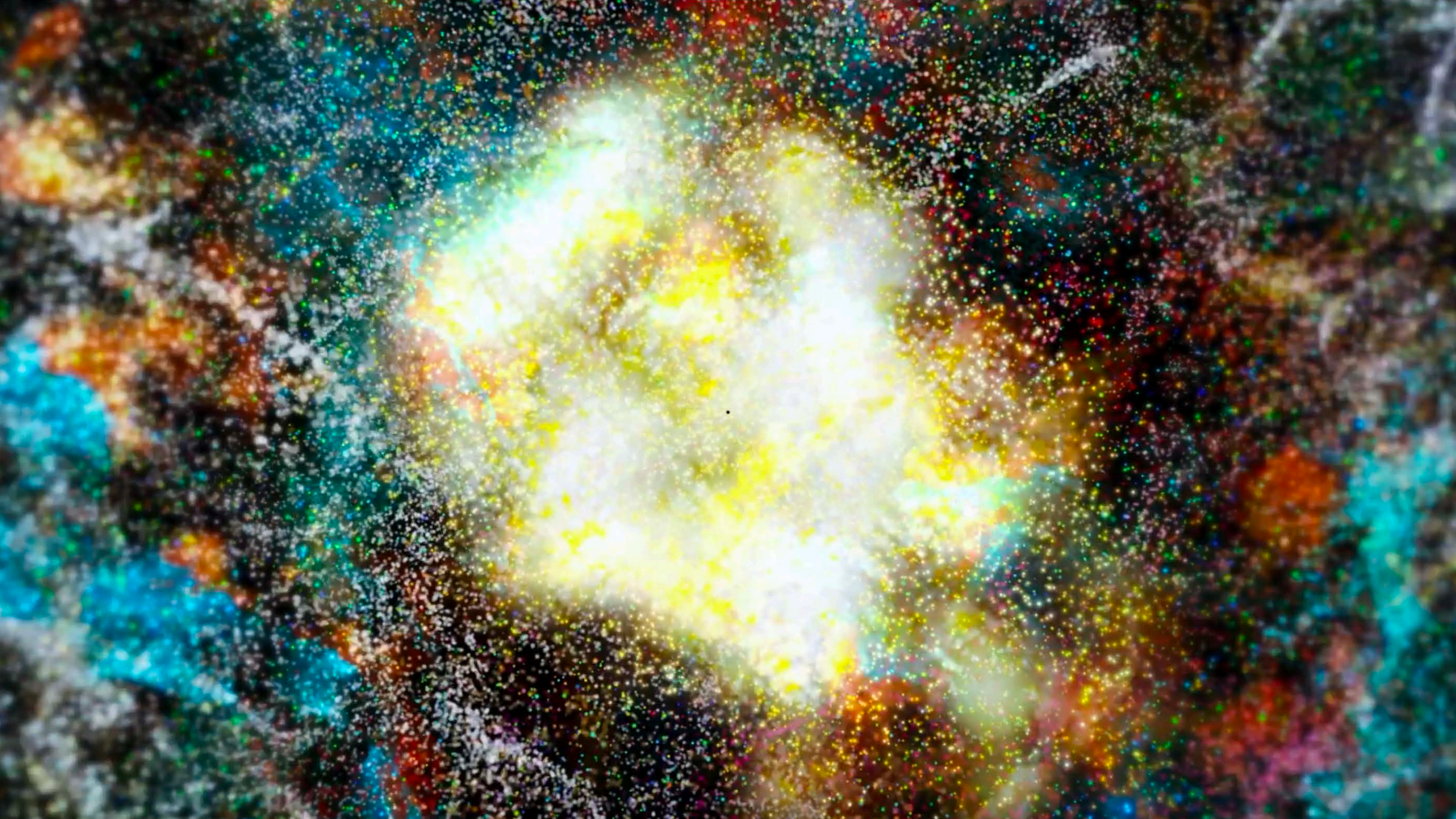

Animation

MK12

Sharing · Belonging · Transformation


LIVE
24 seconds left
BIG ACCIDENT AT
68°
11:03
WLNS


FRIB
FRIB

Initial connections sparked

"My daughter (12) was inspired by the many women in the film. It was great to see her take an interest in science, which she typically calls "nerdy boy stuff.”

Initial connections sparked

“ I used to think of physicists as solitary, brilliant eggheads but not anymore! My view of them is now more balanced: very intelligent people but also funny, inquisitive, determined, emotional, and endlessly creative.”

www.rareconnectionsfilm.com

Thank you!