New Approachs for Fundamental Science Communication

Residency Presentation: Dialogue Between Worlds

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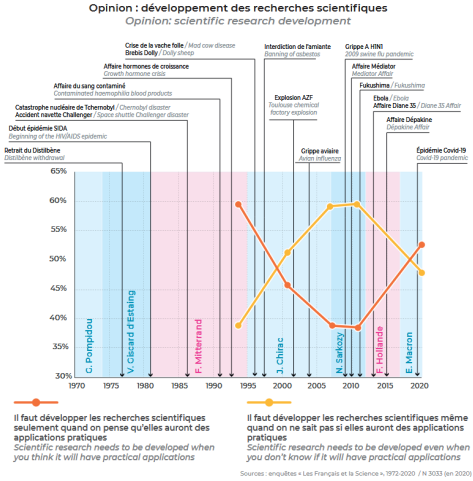
""traditional models has proven insufficient""



(1990–2021) Perception publique de la science et de ses applications — extrait de l'enquête *Les Français et la science*.

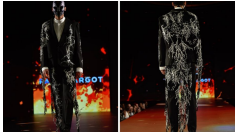
Residency: Context & Objectives

- Collaboration for the creation of a fashion collection designed to communicate our science to new audiences while preserving conceptual and scientific integrity.
- Collaboration since 2022 between CAB-CNEA (Arg), Univ. Tec. Monterrey (Mex) 2025.
- Grounded in the contemporary paradigm of dialogue-based science communication: people's attitudes toward science also depend on values, context, trust, and experience (not just information).
- Initially focused on Astroparticle Physics, then basic science: neutrinos, cosmic rays, gravitational lensing, dark matter, inflation, and more.

Panni Margot — Fashion Designer

- Panni Margot is an Argentine fashion designer known for a futuristic visual style, strong Japanese influences (kimono, minimalism, nature symbolism), and a genderless approach to clothing.
- He was the first designer worldwide to create an entire collection from AI-generated images (via DALL·E), later transformed into real garments. The collection was showcased in the United States at *Runway Latinx Chicago 2022* and later at the *New York Fashion Week 2024* (*Runway 7*, Sony Hall), marking a milestone in his international career.
- In 2024, he was recognized as a **Distinguished Cultural Figure of the City of Buenos Aires** for his contributions to contemporary culture.

Designer's Background

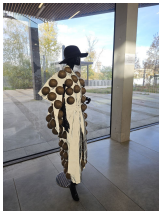
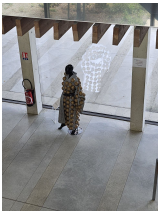


Science Mediation Approach

- Perspective: in the current landscape, new communicative pathways are essential; continuing with traditional models has proven insufficient.
- Purpose: to reach audiences not naturally engaged with science, creating meaningful dialogue and shared knowledge construction.
- Method: approach communication as exploration — experimental, reflexive, and guided by evidence, just like scientific research itself.
- My background: trained in physics, chemistry, education, and science communication — bridging scientific and pedagogical expertise.
- Evaluation is key: systematically assess whether these actions generate lasting changes in understanding, attitudes, or relationships with science.

Example I: The Neutrino Underground Landscape Kimono

- Visual code: golden "photomultipliers"; color-shift fabric (oscillation metaphor).
- Science anchor: neutrino oscillation $\Rightarrow$ mass; global experiments (HK, JUNO, IceCube, DUNE).
- Public prompt for evaluation: *"What does this piece tell you about neutrinos?"*
- First presented: Science talks by scientists at Guadalajara Fashion Week. Fashion talks by designer Panni Margot about the concept and creation of the piece.

Evaluation Results: Word Associations with "Neutrino" (Before / After)

Response category	Before (%)	After (%)	Brief interpretation
Lack of knowledge / no answer	∼30	0	Shift from ignorance to conceptual recognition.
Lexical confusion ("neuron", "brain")	∼15	0	Phonetic and domain confusion completely disappears.
Generic associations ("particle", "science")	∼15	∼25	Persist, but now combined with correct physical traits.
Specific physical traits (mass ≈0, neutral, oscillation, hard to detect)	∼20	∼55	Clear incorporation of essential neutrino properties.
Methodological / measurement terms ("light", "equations", "energy")	∼5	∼10	Emergence (?) of detection and experimental language.
Metaphoric or symbolic extensions ("cosmic", "essential", "everywhere")	∼15	∼10	shift (?) toward more concret

Summary: Participants moved from confusion and "no idea" responses to coherent, physics-based representations of neutrinos as neutral, light, oscillating, and elusive particles.

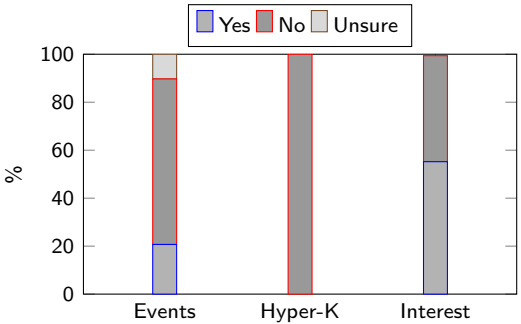
Audience baseline: survey snapshot (Mex 2025)

Key figures

- 30 Responses collected during the event.
- **Science events attendance:** only 7 said "Yes".
- **Heard of experiment:** 0 "Yes".
- **Interested in science:** 16 "Yes".

Interpretation

Most participants had *no prior exposure* to science events or HK, yet about half described themselves as interested in science / Audience curious but disconnected from traditional communication circuits?



- Events = attended science events (2024)
- Hyper-K = heard of Hyper-Kamiokande
- Interest = self-declared interest.

Example II: Gravitational Lensing Bodysuit (Week I)

- Visual code: star-painted base + heat-deformed clear layer (distortion of light).
- Anchor: gravitational lensing reveals non-luminous mass; hypothesis: dark matter.
- Reflection: exploring how invisible phenomena can become tangible through design.

Example III: Cosmic Ray hat+dress (Week III)

- Visual code: hat that hiddes a real detector, connected to the dress.
- Anchor: particle detectors, particle detection, cosmic rays.
- Reflection: exploring how invisible phenomena can become tangible through design.

Roadmap & Next Steps

- **Short term (2025–2026):** Complete and present new garments developed during the residency — including pieces on gravitational lensing, invisible particle detection, and cosmic inflation — alongside existing ones on space exploration and particle traces.
- **Mid term (within 1–2 years):** Design and produce additional garments to complete the international collection, continuing the process of scientific–artistic co-production.
- **Strategic planning for 2026:** Prepare a coordinated action plan for multiple presentations in Paris fashion circuits and other non-traditional venues for science communication, including less elitist circuits.
- **Collaborative reflection:** Discuss new ways to open dialogue about fundamental science through unconventional cultural platforms and evaluate their real social impact.

Closing and Invitation

- During this residency week, we will continue developing garments that are co-produced between scientists, mediators, and the designer in different contexts.
- We invite participants to:
  (a) Critically evaluate the scientific concepts and analogies presented in the existing pieces.
  (b) Reflect on possible new garments and narratives — expanding the collection internationally (a full series counts up to 30 pieces; we currently have six).
  (c) Freely explore how fundamental science can be communicated through unconventional cultural circuits, beyond universities and research centers.
- These reflections will inform the planning of the 2026 exhibits, aiming to reach audiences far from traditional scientific environments.

Q&A

Questions