

A videogame based on particle physics

The image features four characters from the game Exograper. On the left, a large gorilla-like character in a brown suit and goggles. Next to it, a green alien with a white shirt and a mechanical arm. In the center, a small character with a white helmet and blue suit, highlighted by a yellow circle. On the right, two characters in traditional-looking attire, one in yellow and purple, the other in purple. The background is dark blue with yellow and cyan geometric lines and shapes. The word 'EXOGRAPER' is written in a large, stylized, cyan font across the middle.

# EXOGRAPER

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EPS-HEP 2025  
July 11<sup>th</sup>, Marseille



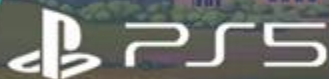


# Exographer, timeline



[Exographer on Steam](#)


- 2019-23 : conception within the Science & Videogame academic chair of École polytechnique (under Ubisoft patronage)
- Nov'23 : shown at the Paris Games Week (200+ players, excellent feedback)
- Nov'23 : creation of the spin-off studio SciFunGames “Science for all, fun above all”
- Jan'24 : deal with the Abylight publisher
- Fev'24 : announced on Steam (wishlist...)
- Sep'24 : simultaneous release on PC & Mac (& Linux) + consoles ! (sales...)



*A **platformer** game  
exploring a **mysterious world**  
imbued with **particle physics***

Take a picture...

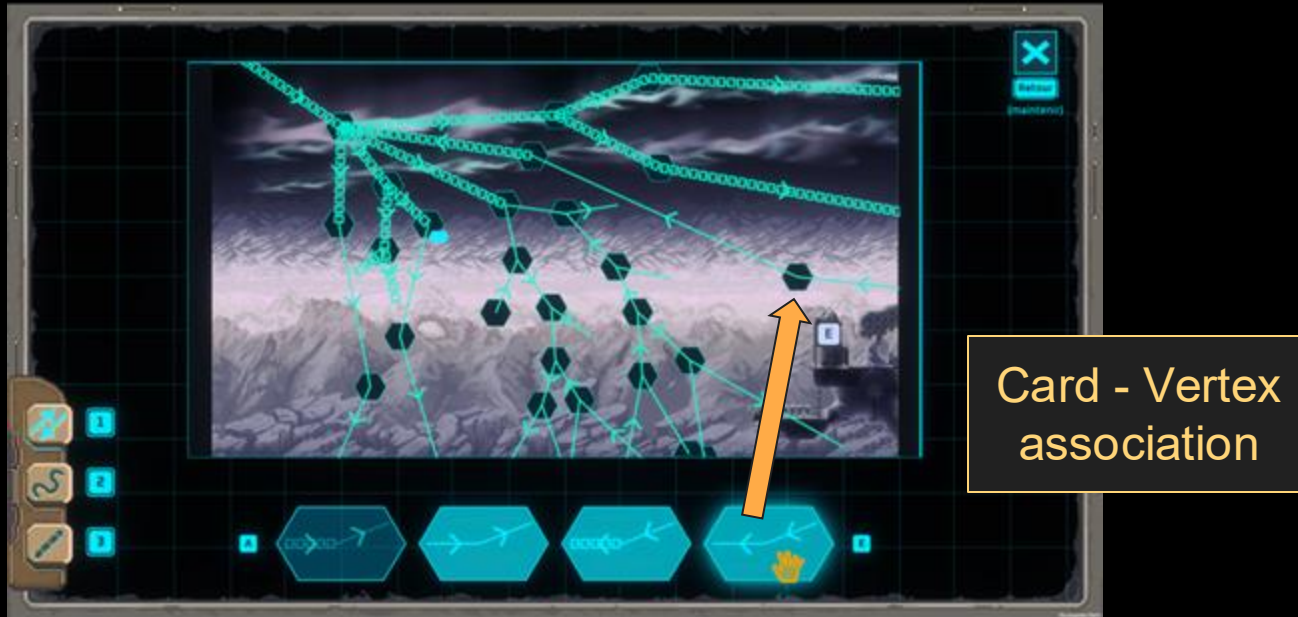




Take a picture... to reveal the invisible!

# Pedagogic goal #1 : Feynman diagrams

To bring non-expert players to manipulate basic (2D) diagrams, via pattern recognition puzzles, including special tools such as: missing energy, time flow or a zoom...





## Pedagogic goal #2 : Particle zoology

In your rosette, collect 17 “pixules” corresponding to (real) elementary particles...



### Muon

Very similar to the electron, just heavier. Its lifetime is relatively long for a pixule, about two microseconds. This longevity allows it to reach the ground, while it is created high in the atmosphere, by energetic cosmic rays. It is there, by the way, that Dirac discovered them. Totally unexpected, these muons showed up by surprise, revealing the existence of other pixules than the ones we are made of.



- Filling the rosette opens new levels
- Discovering bosons unlock power-ups



Photon sphere

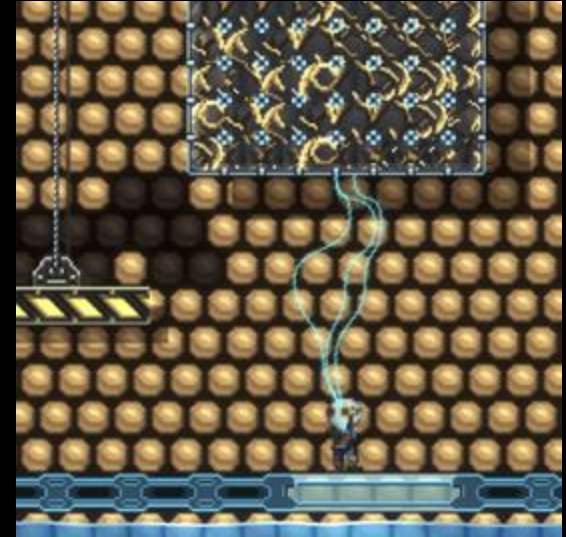


Gluon boots



Wedic wave

## 4 POWER-UPS



Zediacal boxes

Four **skills** allow you to tame and overcome absurd substances



# A SCIENCE-INSPIRED WORLD BUILDING

Rucie



in game

# A SCIENCE-INSPIRED WORLD BUILDING

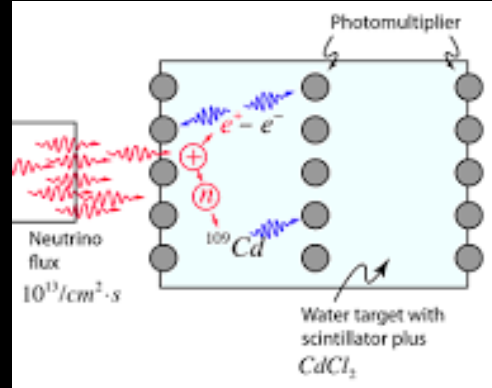
Rucie



in game



Kamiokande, Japan

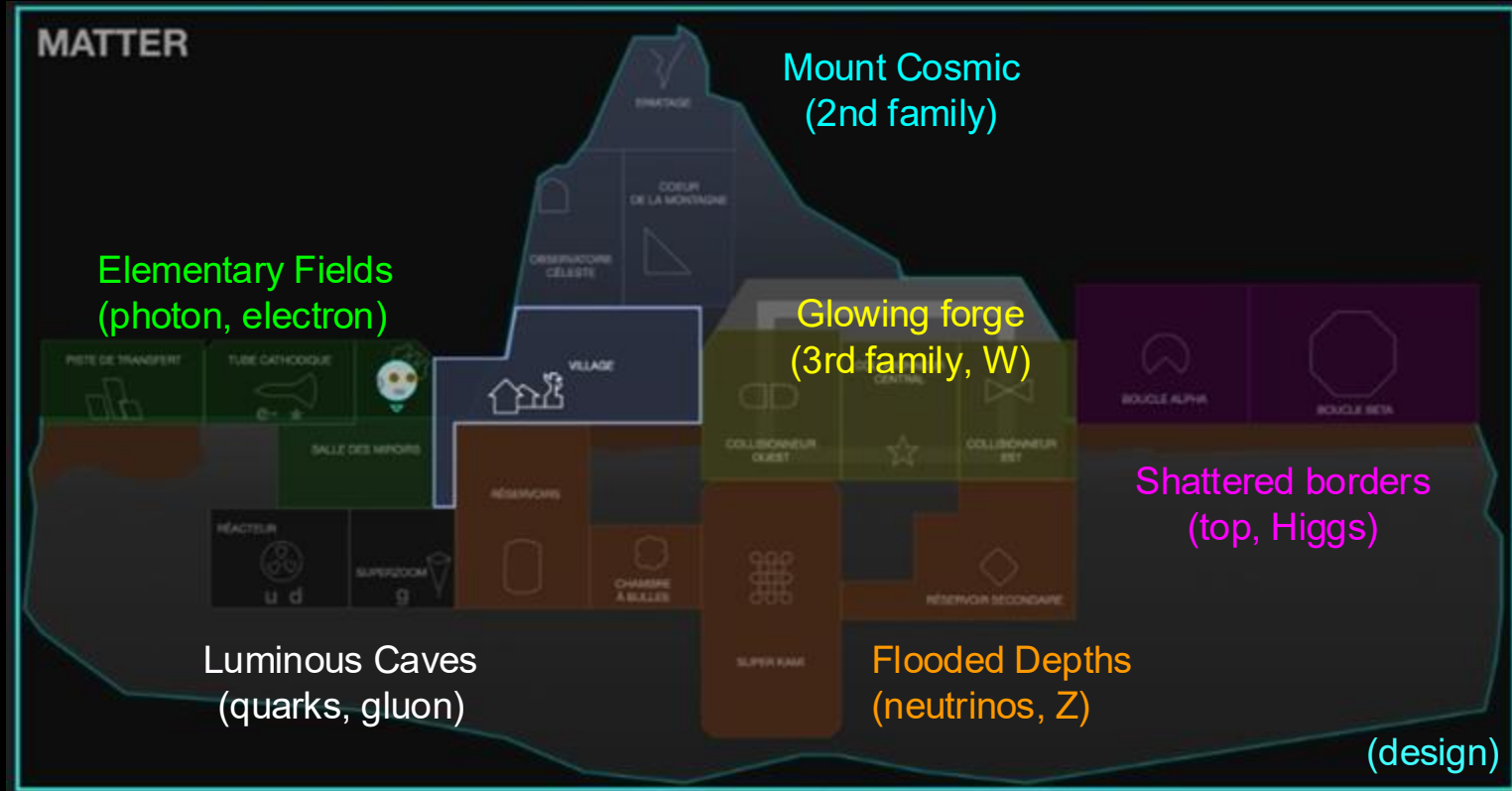


behind the scenes

(to be found in reviews, videos, devlogs...)

# WORLDMAP

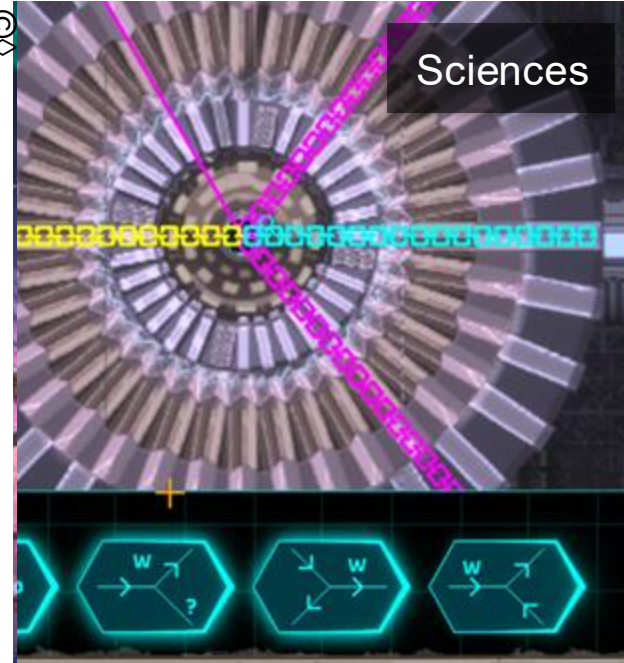
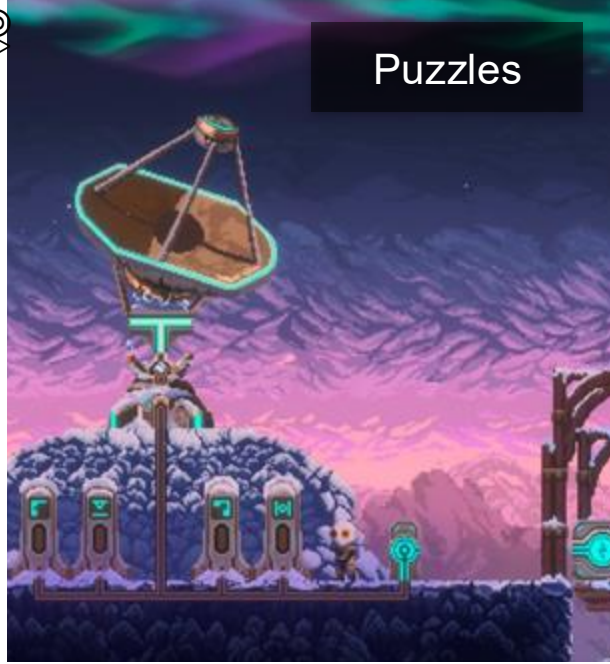
20+ levels and 6 atmospheres to go back to the origin of the disaster and face the ultimate discovery





IN SHORT...

Master goal: raise curiosity for particle physics



About 15 hours of gameplay, surrounded by particles, for ~20 €

# The team



Raphaël

Narration  
Science



Thomas

Artistic  
director



Tony

Lead Dev



Catherine  
Producer

EXOGRAPHER

Priscilla & Arthur  
UX designers



Pierre-Alban  
Game Designer



Léonard  
Tech Art



G4F  
Sound design



Yann  
Composer



# Targeted audience = 12-35 yrs (and beyond)



**Target #1 (Fun)** : Frequent players, curious and eager for new experiences; they have played best-selling platformers (Fez, Braid, Owlboy, Celeste, Ori, Hollow Knight...)

**Target #2 (Sci)** : Players interested in science; prescribing parents; curious scientists; academics; they consume science on other media (Youtube, TikTok...)





# Exographer, lessons



[Exographer on Steam](#)

- **Goal** : reach a large audience with no a priori interest → Video games
- Professional quality videogames cost money (human resources, with several high-level profiles needed)
- **Target** : 10 000+ players (9 languages available)
- Now that Exographer exists:
  - we can use it to popularize our science → Spread it around you?!
  - we can discuss extra visuals / side levels based on your favourite experiment / physics case

CONTACT

Wanna know more?

Wanna play more?



[Exographer on Steam](#)



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<http://scifungames.com>





End of talk, back-up slides



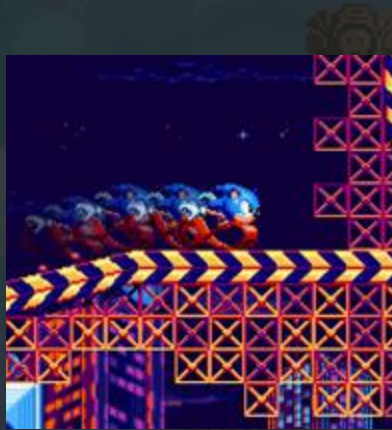


OUR SOLUTION

# Videogames, the best popularization media?



Game  
mechanics



Engaging  
graphics



Large  
audience



Interactive  
experience

# TABLET & PICTURES

Guided by a **mysterious tablet** equipped with a **camera**,  
Unveil **encrypted clues** and repair **impressive machines**



# WORLD

Discover a **familiar environment** yet **strangely** corrupted:

**Four absurd substances** have swamped the world

Each is an **obstacle** that you will **learn to overcome**



ROCK



FLORA



TAR



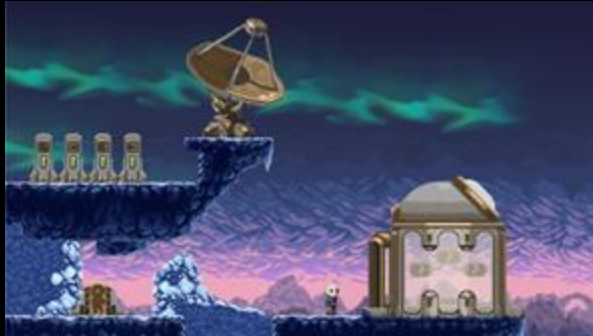
FOG



# EXOGRAPHER'S PILLARS

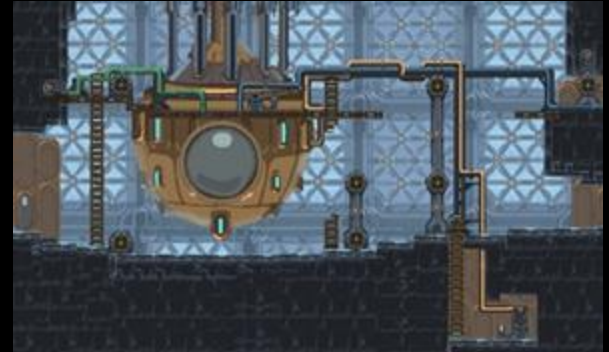
## A mysterious world

Full of intriguing machines  
unveiling fascinating  
phenomena



## A pure platformer game

Engaging and guiding  
players through original  
mechanics

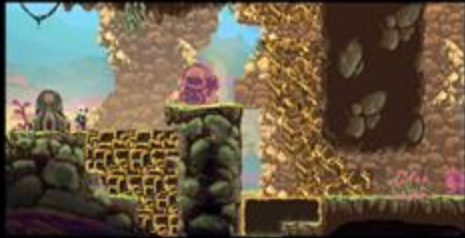


## A scientific background

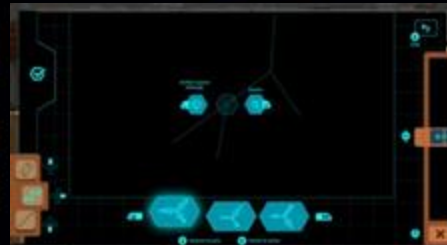
Echoing from world  
building to puzzle design

# A DUAL-PHASE EXPERIENCE

Explore a **disconcerting universe** and break its mystery...



Understand its **core elements** to track the chronology of a disaster...



# CHARACTER

Embodiment, an explorer teleported for a **rescue mission** on a strange planetoid, with no possible return

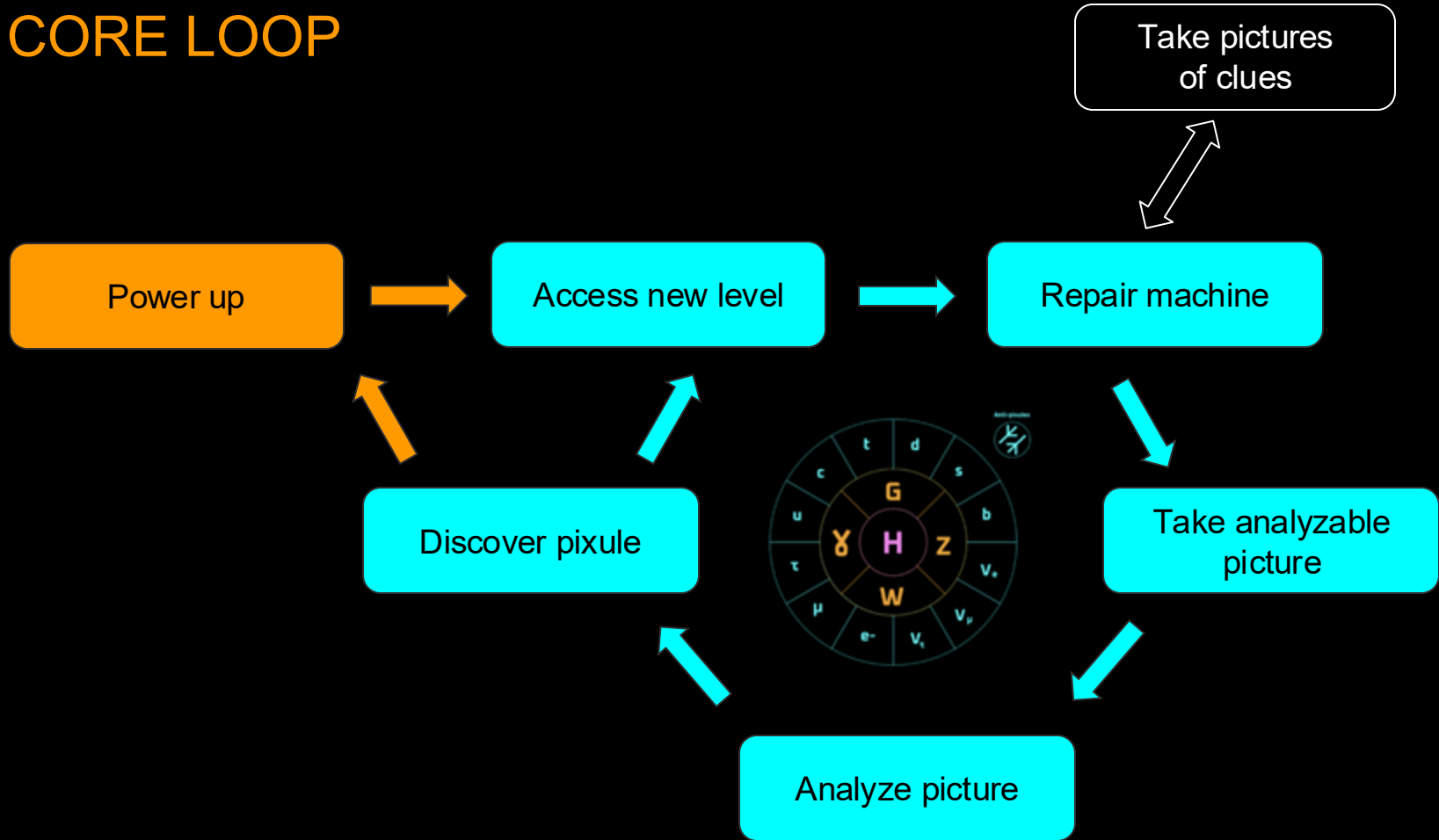


Character equipment and progression





# CORE LOOP



# A CENTRAL FEATURE = TAKING PICTURE

Reveal new particles  
and their tracks



Decypher all the clues  
left by the Natitans...



Help solving puzzles



... providing as many  
check points



Provide a unique game save point



## IN SHORT

*Live an amazing encounter with science,  
making particle physics intriguing,  
wonderful and tameable through a pure  
puzzle / platformer game*



Science for all

Fun above all



The first videogame studio dedicated to science popularization

# Reconnecting audiences

27%

of young people\* doubt  
that humans are the  
fruit of evolution  
(IFOP, 2023)

95%

of young people\*  
play video games  
(SELL, 2020)

200G\$

annual worldwide  
revenue from video  
games, the leading  
medium

→ Using video games to democratize science

\* French statistics, same tendencies worldwide

OUR FOUNDER

# Raphaël Granier de Cassagnac

- **Ubisoft's** trust to hold the Science & Video Games academic chair @ **Polytechnique** (2019-2023)
- **Sci** = physicist at CERN & **Fun** = Game studio co-founder, writer (3 novels, 12 short stories, 4 universe-books, 2 movie projects...)





# They played Exographer

« I want to play it on Nintendo switch » A **Nintendo producer**, Game Connection 2022

« We see the game appealing to players that appreciate puzzle-platformer games with a core focus on puzzles. » A **Ubisoft producer**

« It's weird, but fun weird. » **Eva Gaspar**, Abylight's CEO

« A great way to discover particle physics while having fun! » **David Louapre**, (French scientific youtuber with 1,3 M followers)

« With Exographer, you enter the world of the infinitely small, and strangely enough, you come out all grown up! » **Étienne Klein**

« A game which does not take players for imbeciles », **Yanukass**, Paris Games Week

« The powers are easy to handle and fun to use » **Tester #A**

« The Yurt level is really beautiful » **Tester #B**

# OUR Positioning

Game	Total revenue
Braid	6 000 000 €
Fez	3 500 000 €
Outer Wilds	27 000 000 €
Elec head	400 000 € (PC)
Spacechem	2 000 000 € (PC)
Kerbal SP	55 000 000 €
Celeste	85 000 000 €
Hollow Knight	200 000 000 €

Fun (platform / puzzle games)



# THANKS FOR YOUR ATTENTION



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