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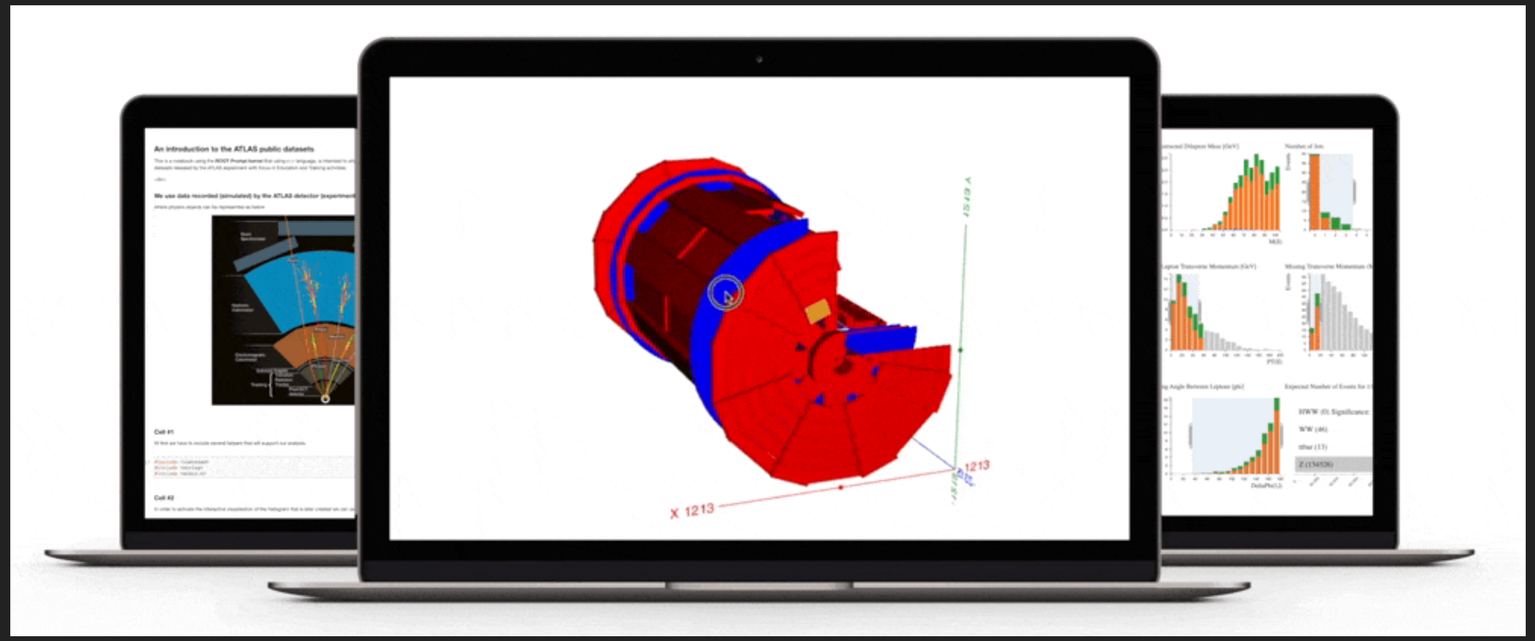



Meirin, on behalf of Sussex ATLAS group

# Co-creation between US & school students

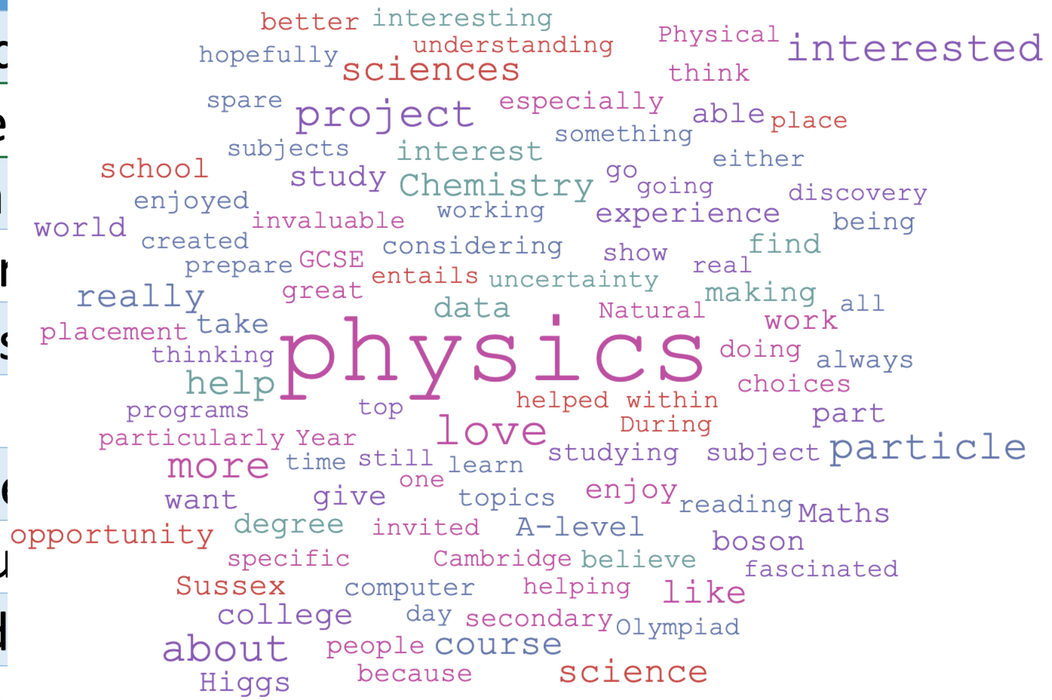

Co-creation
BHASVIC
Sussex ATLAS
imgflip.com


now
Dec
2020

# What pre-requisites did we require?

- ...none!

| why you'd like to do this project |
| --- |
| I would be greatly interesting and |
| I'd like to do this project because |
| Dear University of Sussex applica |
| I would love to take part in the pr |
| I've been really interested in phys |
| I really love particle physics and I |
| I love physics. I love how it teache |
| I'm planning to study physics at u |
| I'm interested in Physics as a brid |
| I would love to take part in this p |

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# What technologies are we using? – Microsoft Teams

- All in 1 (meetings, chat, files)
- Only teacher can control breakouts
- Can’t move between breakouts

- **Advice**: Use what the school uses
- If multiple schools with different platforms, use your fave

# What technologies are we using? – HYPATIA


- Successful with masterclasses
- Old software
- Problems with operating system, versions, java…
- Has anyone used HYPATIA web?
- Are Open Data tools accessible w/o masterclass-type intro?

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# What technologies are we using? – Histogram Analyser





- Encourages interactive exploration

- Documentation aimed at uni students

- Can this be made fully accessible to school students?
- Can this be school students' intro to particle physics?

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# How are we mentoring students?

| Live | Independent work |
| --- | --- |
| 1 hour per week | ~1 hour per week |
| Mix of main room & breakouts | Groups to discuss independent work |
| 1 researcher & 2/3 students per breakout | Available over chat to answer questions |

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# What barriers to participation have we found?

Cameras remain off

2 students stopped after 1st session

1 student needs to leave halfway through each session

Student might miss the odd week

Schools flipping between face2face & online

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# How much co-creation has been possible?

- Less than hoped for ☹
- Student asked “why us rather than Y13/teachers?”
- Students may come up with a few ideas
  - but most work still has to be done by you
- Best to evaluate where students aren’t clear
  - then you generate ideas on what needs improving

# What hasn't gone well?

- Slides >10mins go over their head
- Not much discussion in main room
- Last minute attempts to involve researchers
- Students don't always do independent work
- Not sure if they always discuss in their groups
- Not many questions on independent work

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# What's gone well?

- Breakout rooms
- Links to school curriculum (particles, energy, EM…)
- Teacher Continuing Professional Development (CPD)
- Low-threat-high-challenge through offline research & groups
- Students given opportunity and responsibility
- Paying PhD students through outreach budget
- Submitted a paper to an education conference

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# Future challenges

- How to ensure our tools and resources are **accessible** without guidance from physicists?
- How to incorporate our tools into more schools?
- How can we spread our tools into **wider use**? e.g. platforms that teach machine learning, Kaggle…
- How can we **teach more than just particle physics** – skills in computing, analysis, data science, machine learning…?
- How can we reach more students that need it?

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# For the future

- Lessons learnt from co-creation with 10 school students:
  - Remove all pre-requisites
  - Understand the technologies you're using
  - Support students live and offline
  - You will encounter barriers along the way
  - Co-creation is difficult and takes time
  - No matter what, make sure the students have fun

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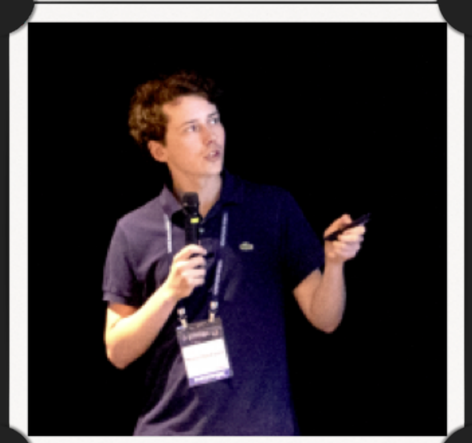
# Thanks!

Diolch!



*also to everybody at BHASVIC