https://entrepreneurship.engineering.columbia.edu/discover/for-undergraduate-students/fast-pitch/

FAST PITCH — PART 3

Discover → For Undergraduate Students → Fast Pitch

APPH E4901 and APPH E4903

Applied Physics Seminar

Fast Pitch Competition:
Thursday, November 21 · 5:30 – 9:30pm

How to Craft your “Fast Pitch”…

- Summarize the challenge/problem/issue in one sentence. Explain why it matters.
- Describe two or three most interesting parts of the concept/business. Explain why it is innovative/cool/attractive.
- Name two of three biggest impacts of the business plan. Explain why your customers will care.

“Top Tier” Projects

- "Smaller Floats for Inexpensive and Accurate Ocean Floor Mapping”
- "Drones with Water and Snow Depth Sensors for Accurate Water Management”
- Both of these ideas combine remote sensing technology, automation, and wide-area sensor dispersal to inform land and water resource management. One idea uses remote sensing on floats. The other flies. Both are excellent ideas. We need to go deeper in developing the technical concept and assessing the potential markets.

“Second Place” Project

- "Quantum Entanglement for Fast Secure Trading”
- Last year’s AP undergrad seminar lecture on quantum entanglement: http://www.apam.columbia.edu/courses/apph4903x-2018/AP Seminar-Entanglement.pdf

Satellite-based entanglement distribution over 1200 kilometers

Fig. S1

The pictures of payloads in the satellite. (A) The payload layout. (B) The SPES in mechanics test. (C) The transmitter 1 with a diameter of 300 mm. (D) The transmitter 2 with a diameter of 180 mm.

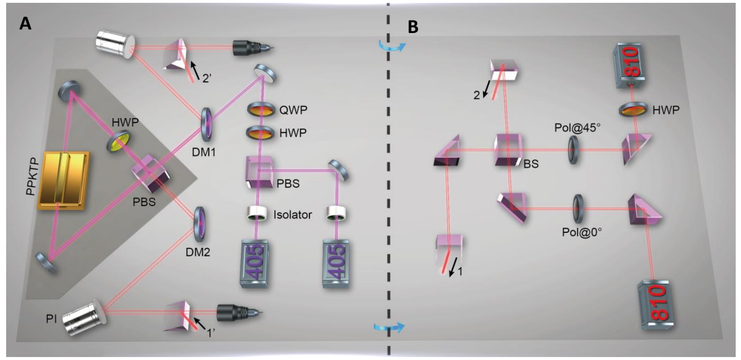

Fig. S2

Schematic diagram of the SEPS. The optical elements are mounted and glued on the both side of a titanium alloy base board. (A) The upper side generates entangled photon pairs. (B) The bottom side offers reference lasers for polarization control process and freespace channel testing. Two lasers with wavelength around 810 nm are polarized at 0 and 45-degree, respectively. Both laser beams are split on a beam splitter (BS) and combined with the entangled-photon beams by two pairs of prism. HWP, half-wave plate; QWP, quarter-wave plate; BS, beam splitter; PBS, polarizing beam splitter; DM, dichroic mirror; PI, piezo steering mirror; PPKTP, periodically poled KTiOPO4.

Yin *et al.*, *Science* **356**, 1140–1144 (2017) 16 June 2017

“Third Place” Projects

- "Portable, Lightweight Computer with Augmented Reality Glasses”
- "Safe All-Scenario Shooting Range System using Virtual Reality”
- These two start-up ideas combine the latest advancements in virtual display technology to simplify the portable computer or to provide law enforcement, security, and military officials safe training opportunities with augmented reality. Because companies already exist in these areas, we need to differentiate the proposed products from others and determine how our product meets market needs.

Another Round of “Selection”

- ***Cost and Market:*** What is the cost window for the expected market?
- ***Technical Implementation:*** How should it work? What needs to be developed, tested, and shown to customers?
- ***Due Diligence:*** What is the state of the art? Who are competitors?

Working Together — Combining Markets — Developing Common Platform for Multiple Users

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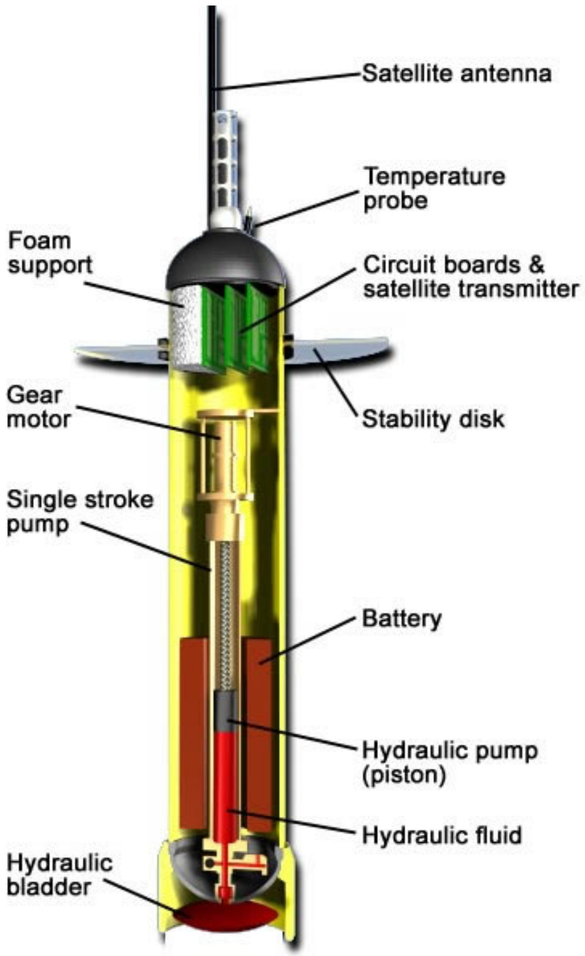

Working Together — Combining Markets — Developing Common Platform for Multiple Users

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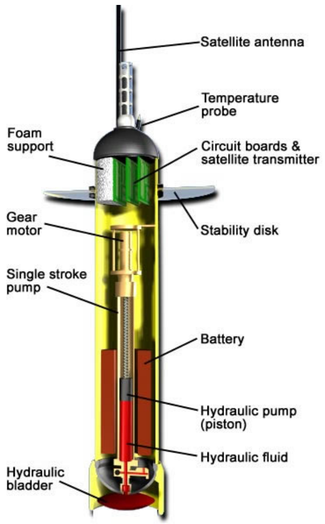

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