

Tenacity 2022

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Contents

- Review of the year 2021
- My plans for the year 2022
- What I have been doing in Pasadena this month



Review: My Plans JFY2021

Couldn't done. Ordered/installed some new optics.

Work in progress
but not yet...

Impressive progress
at LMA but no
characterization yet

Work in progress

Almost done

Started writing
a paper

About to submit

My Plans JFY2021

- Remaining optical table covers and some optics for KAGRA
- Write **O3 commissioning paper**, **birefringence paper** and **parametric instability paper**
- Write SILVIA and DECIGO paper
- Development and characterization of **optical levitation mirrors**
- Start **DANCE Act-1 observation** and get the first results
- **Polarization studies** for DANCE
- Introduce **polarization optics to TRX and TRY** of KAGRA
- Search for vector boson dark matter **with KAGRA data**
- Papers on axion search with TMS, **stochastic effects**



Review: My Expectations JFY2021

My Expectations JFY2021

- **Q measurement** at cryogenic temperatures, with some interesting results
- Observation of **radiation pressure noise**
- Operation of (fixed) TOBA at cryogenic temperatures, with a **monolithic optical bench**
- Full characterization of **coupled WFS**
- First **DANCE observation** and data analysis
- Realization of s-pol and p-pol **simultaneous resonance**
- Write **axion sensitivity** calculation paper

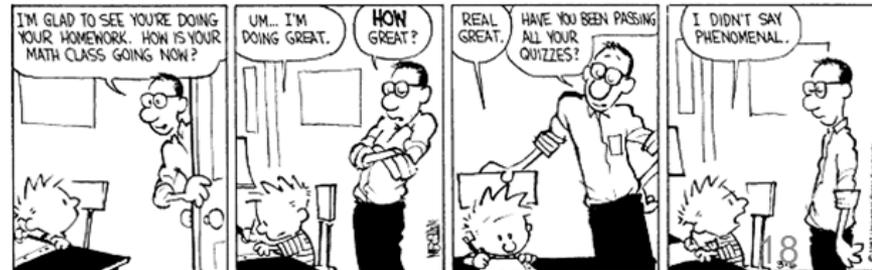
Work in progress

Oshima-san did it!

Need to write a paper

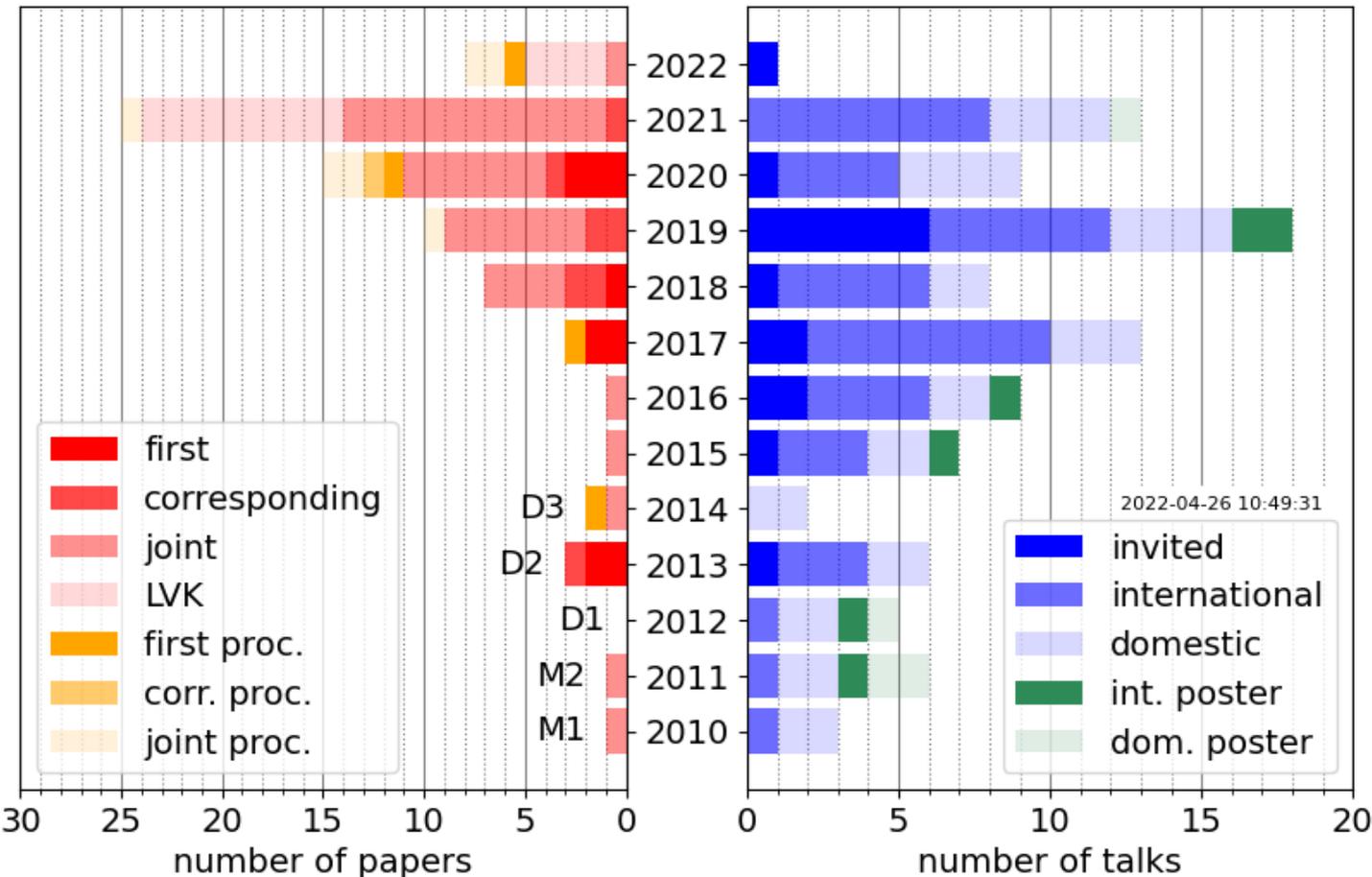
Fujimoto-kun did it!

Need to write a paper



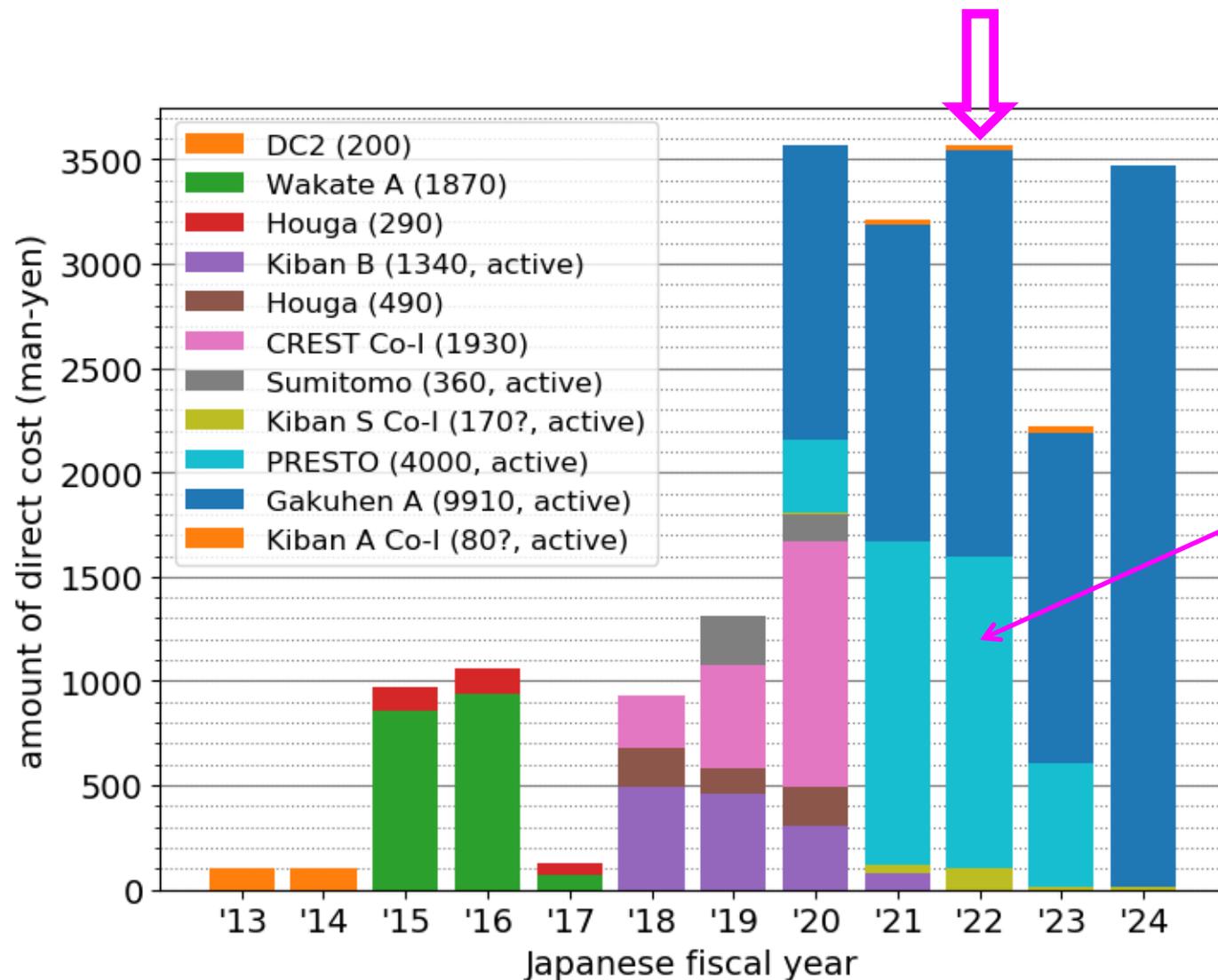
Productivity

- Multiple PTEP and Galaxies papers in 2021, need to work harder in 2022
- Hope to start in-person workshops in 2022



Grants for JFY2022

- Kiban B finished. No new grants.

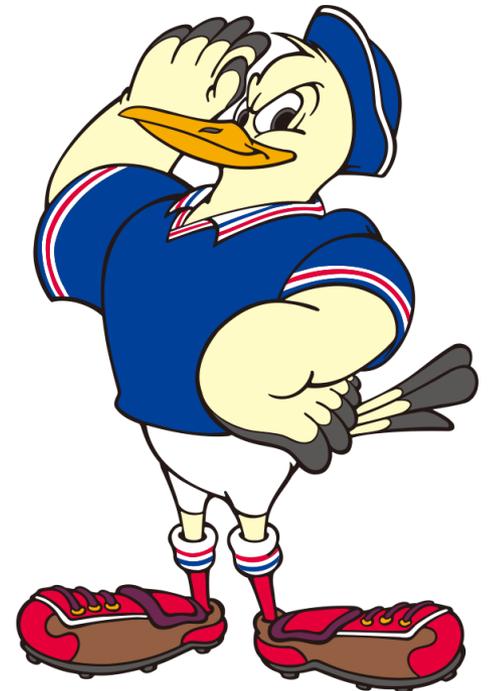


Still working on how to bring PRESTO to Caltech. Currently the project is suspended.

※直接経費のみ

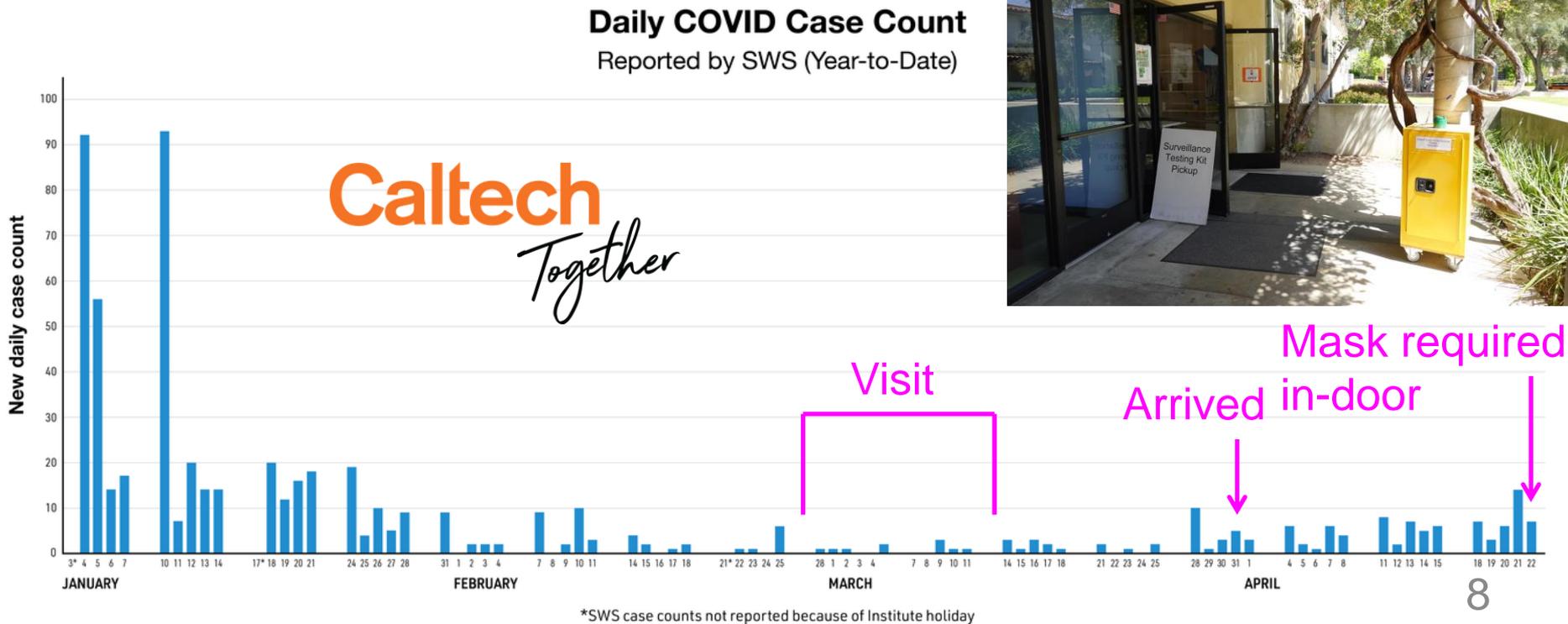
My Plans JFY2022

- Write **O3 commissioning paper**, **birefringence paper** and **parametric instability paper**
- Write SILVIA and DECIGO paper
- Development and characterization of **optical levitation mirrors** (waiting for volunteers!)
- Write **DANCE Act-1 data analysis** paper
- Write vector dark matter search **with KAGRA data** paper
- Finalize paper on dark matter **stochastic effects**
- Start working on **Mariner and Voyager**
- Start working on DANCE at Caltech



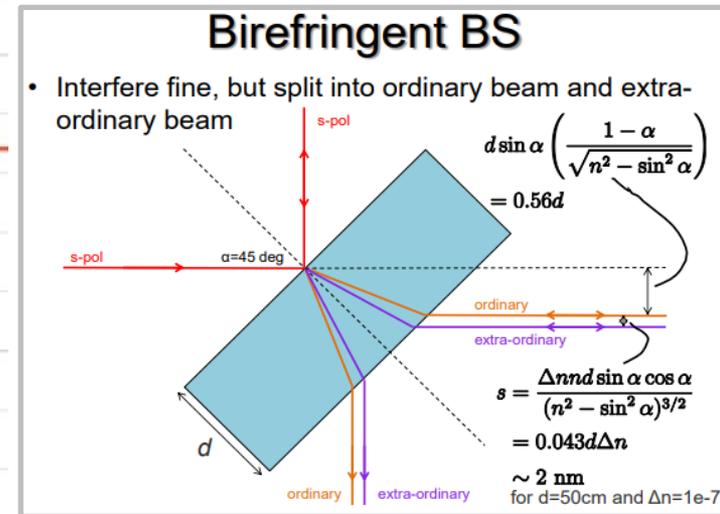
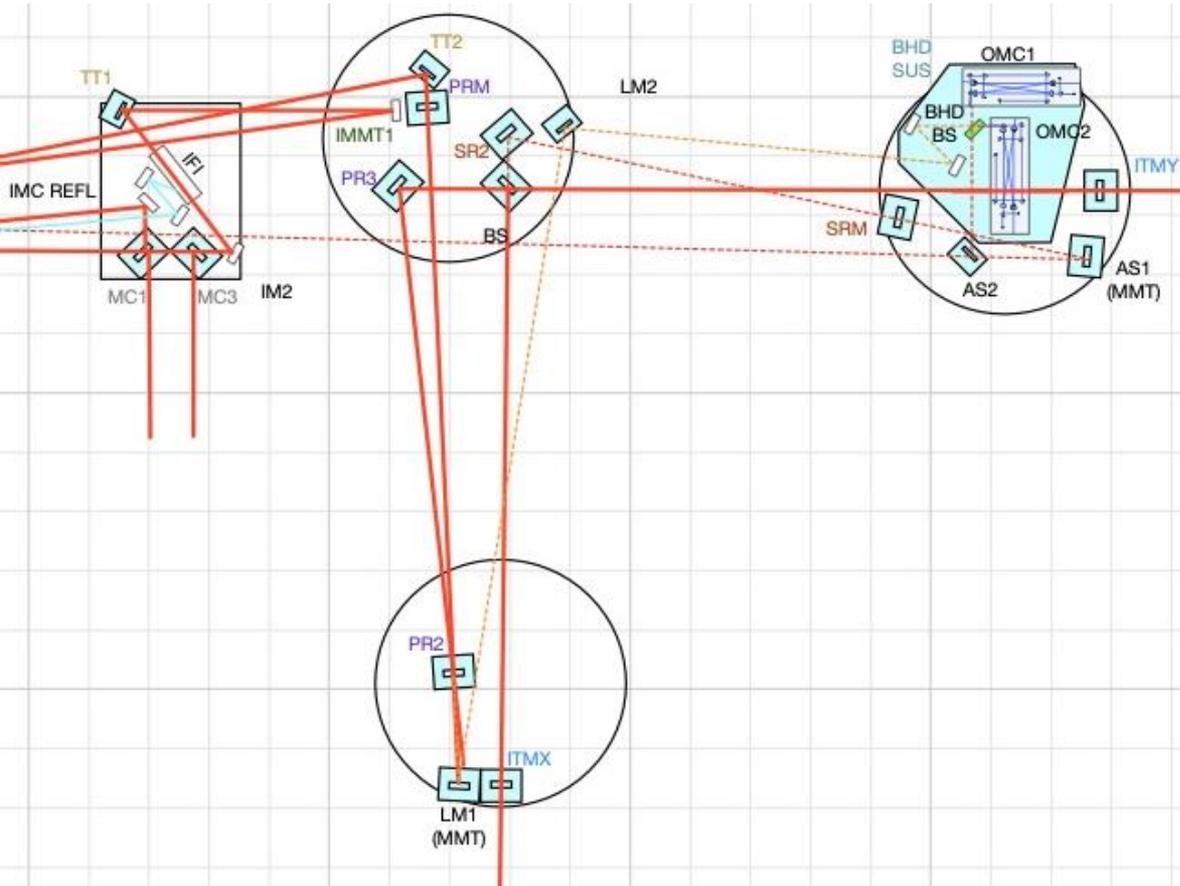
COVID Situation at Caltech

- In-person meetings (Tue, Wed) and Zoom meetings (Fri)
- Back to masks from April 22nd -> outdoor meetings
- Masks (N95, KN95) and surveillance tests provided for free
- Many people around Pasadena are wearing masks, and many stores have sanitizers



40m Status and Silicon

- Vacuum tanks open for balanced homodyne readout (BHR) upgrades
- Still far from silicon interferometer
- Did some calculation on BS birefringence ([LIGO-G2200695](https://arxiv.org/abs/LIGO-G2200695))



Summary

- People say no since I don't have an SSN or US driver's license. I had to at least ask twice or ask for alternative solutions
- International offices at Caltech are very helpful
- Next tasks are to get a car and driver's license, and to have PCP see our son (and ourselves)

