



ALPHA status

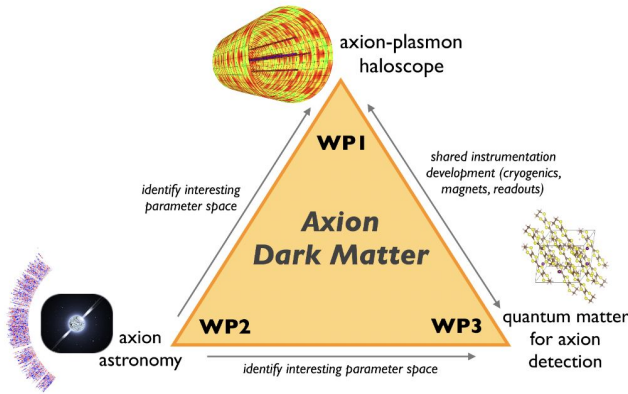
Introduction to ALPHA,
A tunable axion plasma haloscope experiment

20-21 October 2022
Oak Ridge National Lab

Timeline

- 2016: Frank Wilczek joins Stockholm University
- 2016–2019: Sebastian Baum (then PhD student at SU, now at Stanford) leads various axion-related initiatives, including Axions in Stockholm (2018)
- 2018: Alex Millar gives an excellent colloquium at the Oskar Klein Centre on MADMAX and subsequently accepts a postdoc position at SU
- 2018: Alex teams up with Matthew Lawson (SU postdoc) to form a very active weekly axion journal club at the Oskar Klein Centre
- 2019: Lawson et al. is published, immediately gathering a lot of attention
- 2020: Jan Conrad, Frank Wilczek, JEG, Hiranya Peiris, Stefano Bonetti are successful in getting a 15M SEK Research Environment grant from the Swedish Research Council – Alex and Matthew are key to this effort
- Spring 2020: The [AxionDM web site](#) goes public

AxionDM: <https://axiondm.fysik.su.se/>



axionDM @ Stockholm University

Home Team Publications Research ALPHA News

Welcome to AxionDM @ Stockholm



The nature of the dark matter is one of the most profound unanswered questions in fundamental physics. The axion is a leading dark matter candidate that would additionally remove a major blemish on the Standard Model of particle physics – the Strong CP problem which, without the axion, constitutes an inexplicable level of fine-tuning. The goal of this project is to seed and develop bold new ideas and technologies from material science that can revolutionise the search for the dark matter axion, and to use astronomical observations to search for complementary signals.

News

5 October 2022

We are hiring an experimentalist for ALPHA: [link to advertisement](#)

4 October 2022

The ALPHA White paper goes online: [link](#)

1-2 February 2022

The first ALPHA Mini Workshop was held

7. May 2021

The ALPHA Consortium was formed [link](#)

5-7. May 2021

The first workshop dedicated to plasma haloscopes

10. March 2021

Dark Matter Is Not "Fuzzy": [link](#)

12. November 2020

AxionDM at MultiHEP2020: [link](#)

[... see all News](#)

Timeline continued



- Spring 2021: Lawrence Workshop in Arizona
- Spring 2021: The ALPHA Collaboration is formed
- Summer 2021: ALPHA logo emerges
- 2021: Bi-weekly meetings begin (3 meetings Tuesday and Thursdays)
 - Active participation from researchers in both US and Europe
- 2021: Work on the ALPHA white paper begins
- Fall 2021: We begin R&D effort at the SU lab
- Summer 2022: ALPHA is represented at the Seattle Snowmass meeting
- Fall 2022: The ALPHA White paper comes out
- Last week: The Knut and Alice Wallenberg foundation grants 27.5 MSEK (2.4 MUSD) to this effort (5-year period); proposal co-Is: Jan Conrad, JEG, Frank Wilczek.