

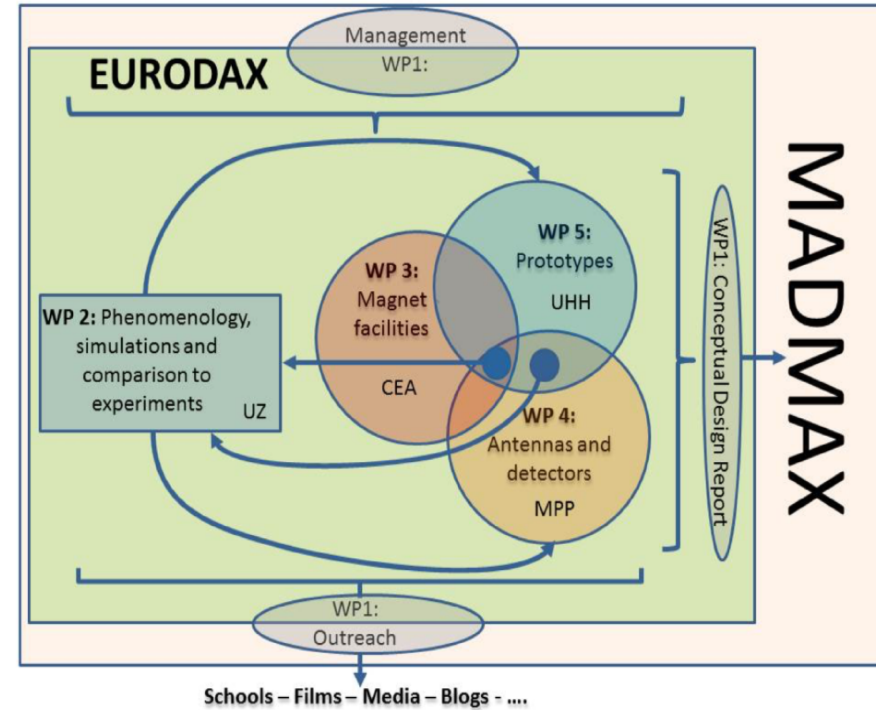
European Design Study for Dark Matter Axion Searches (EURODAX)

Participant organisation name		Country
CEA	Pierre Brun	France
MPG	Béla Majorovits	Germany
University of Zaragoza	Javier Redondo	Spain
UHAM	Erika Garutti	Germany

- Deadline March, 29 2017
- Need 3 European countries
Spain (Zaragoza), Germany (Hambourg, MPI), France (Irfu)
- Should describe the full project
does not take into account the 10 T Magnet studies

Five Work Packages

WP (all costs in €)	EC requested funding
WP1 Coordination and outreach	95 000,00
WP2 Phenomenology, simulations and comparison to experiments	343 000,00
WP3 Magnet facilities	1 149 295,00
WP4 Antennas and detectors	582 720,00
WP5 Prototypes	695 000,00
Total	2 865 015,00



Four Participants
(include overhead)

Partners (all costs in €)	EC requested funding
CEA	1 230 015,00
MPP	849 000,00
UHH	458 000,00
UZ	328 000,00
Total	2 865 015,00

Money for what?

- Deliver high magnetic field 8T infrastructure for tests of individual components (saclay)
- Deliver high dipole field 3T for test of a medium scale booster prototype and for big components (saclay)
- Implement 3D simulations of signal boost for prototype boosters and final setup and investigate effect of mechanical and theoretical uncertainties onto boost curve (Zaragoza)
- Design, build and commission medium scale booster “dry” prototype at room temperature without magnetic field (UHH)
- Spherical Dish antenna setup for high frequency (saclay)

Money for what?

- Develop technology to supply large discs with high ϵ and low $\tan(\delta)$ (UHH+MPI)
- Assembly of sensitive radiometer system based on an improved design of an already developed and Implemented setup for measurement in the frequency range 10-50GHz(MPI)
- Test and qualify discs and individual components of “dry” booster in high magnetic field and exchange non suitable components(UHH)
- Test measurements of medium scale booster in high dipole field and compare to simulations(all)
- R&D towards radiometer technology for the frequency range above 40 GHz.(MPI+Saclay)

Magnets

B~3 to 4 Tesla

schematic diagram
only one support is drawn to keep the overall view clear

LaAlO 3 discs

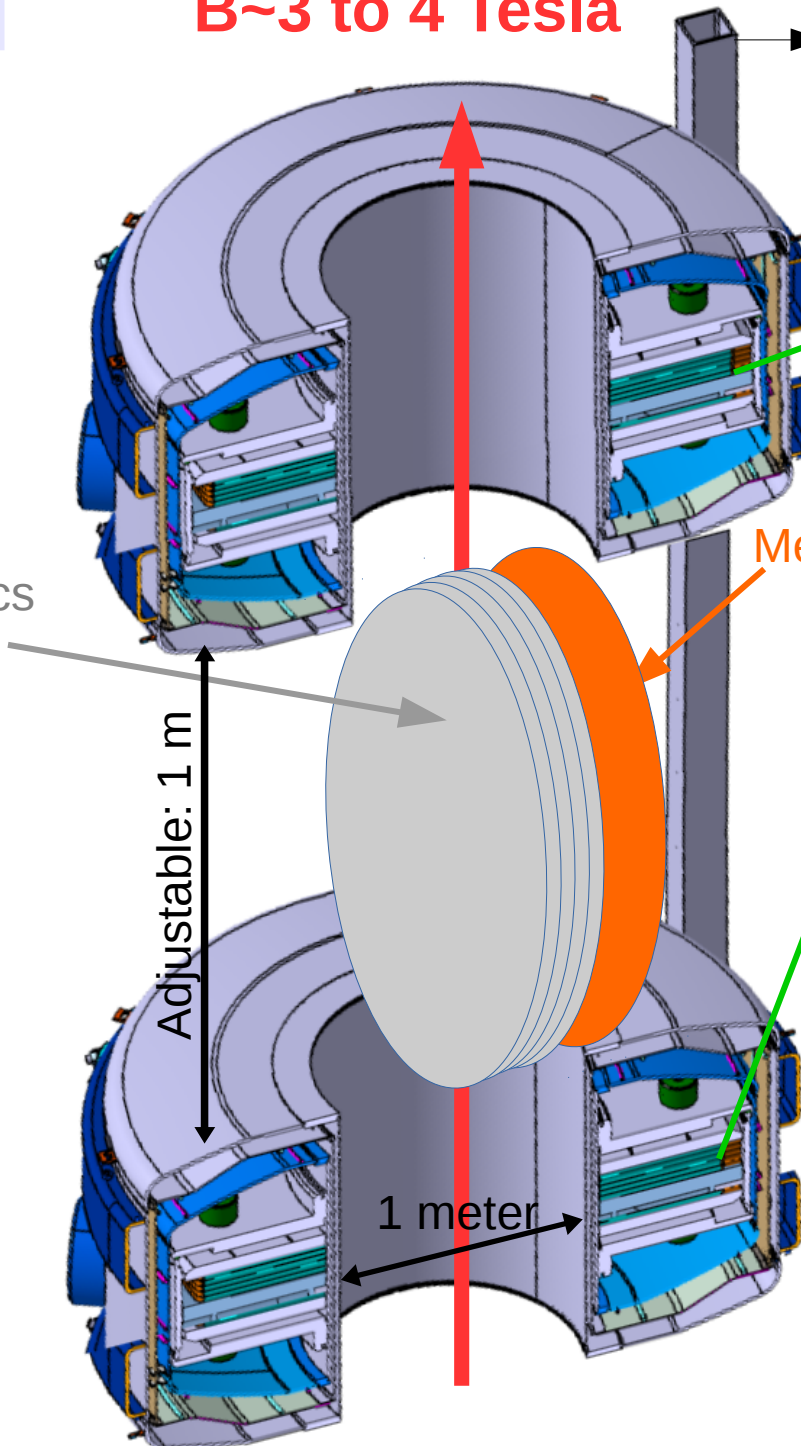
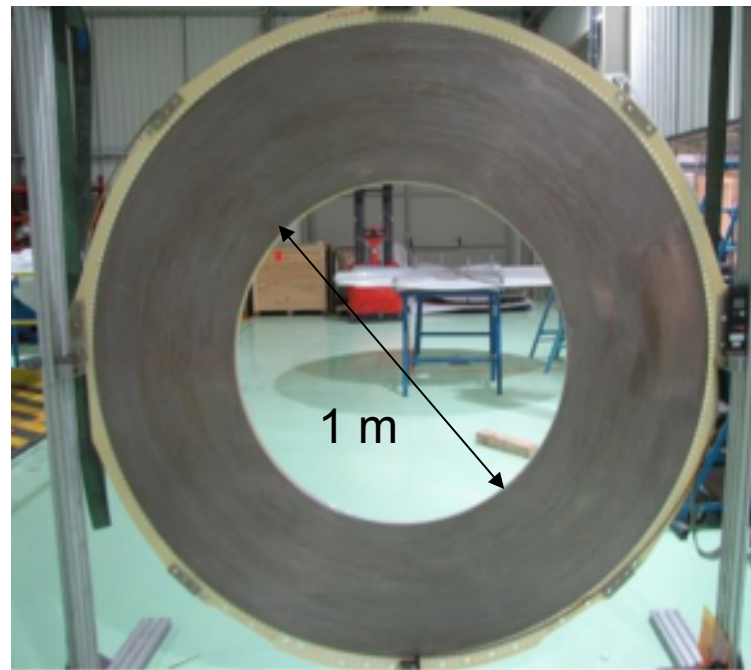
4x2 Existing coils

Metallic disc

Adjustable: 1 m

4x2 existing coils (spare fro Iseult)

1 meter



Support from:
Helen Quinn

Jean Iliopoulos
Josef Jochum
Michel Kramer
Joachim Mnich
Michel Spiro

3/28/2017

To whom it may concern:

This letter is to express my support for the concept of the Magnetized Disks and Mirror Axion Experiment (MADMAX). While axions have long been regarded as a possible dark matter candidate, the effort expended in searching for them has been tiny compared to that for the WIMP type candidates that are another possibility. This experiment promises to probe a theoretically interesting mass range and can probably eventually achieve very interesting sensitivity to axions in that range if they are the dominant component of the dark matter halo of our galaxy. I therefore enthusiastically support the exploration of this region as proposed, and commit to participating in the outreach work that is proposed as an adjunct to the experiment.

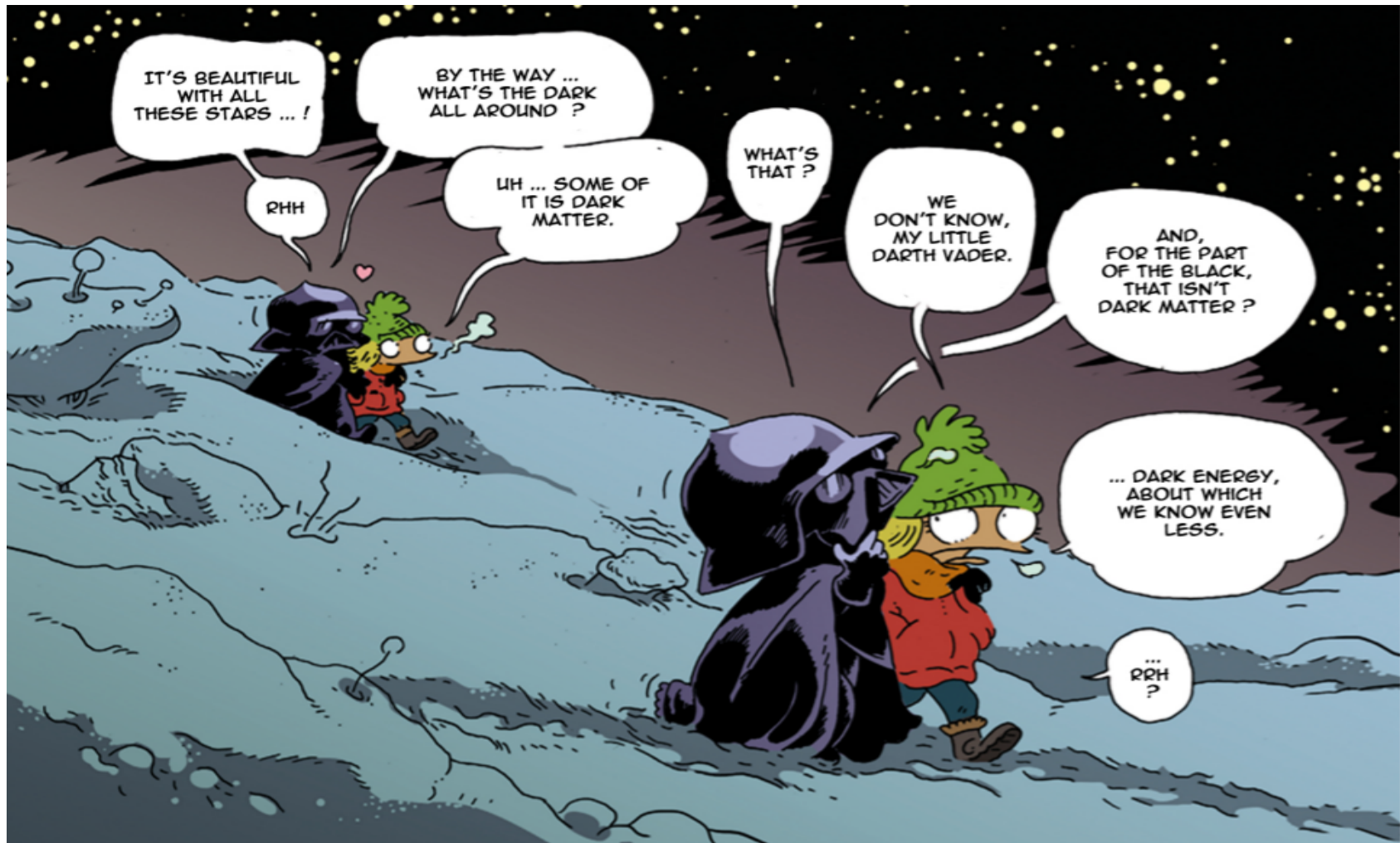
Yours sincerely,



Helen R. Quinn

Professor Emerita, Particle Physics and Astrophysics

- Involve film company
- Helen Quinn and Vera Rubin as role models
- comics



Time Line

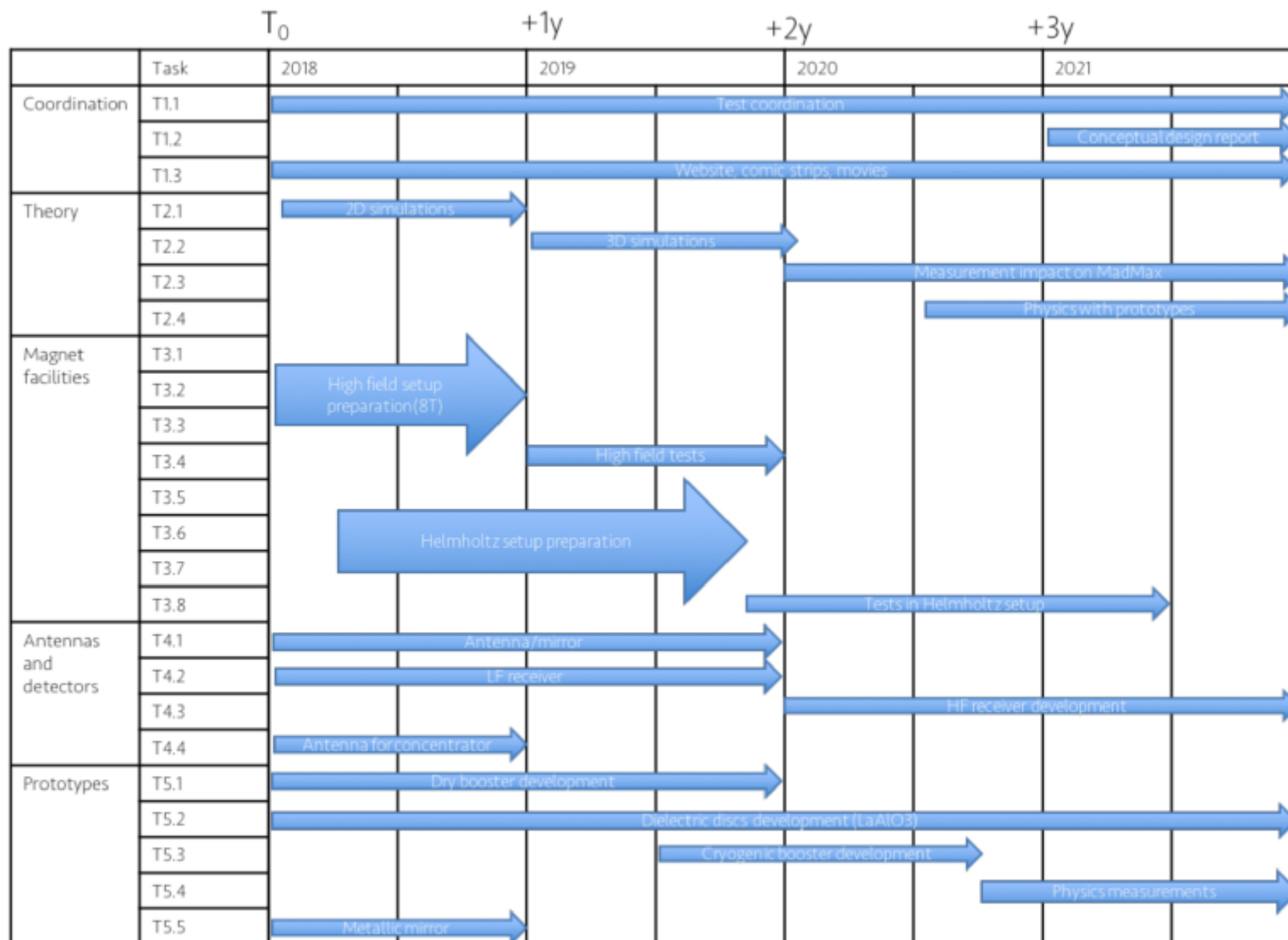


Figure 8 : Overall timeline of the EURODAX design study.

Results due around september 2017