

# Project manager's report

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## LhARA Steering Group Meeting

**Ajit Kurup**

**5<sup>th</sup> June 2020**



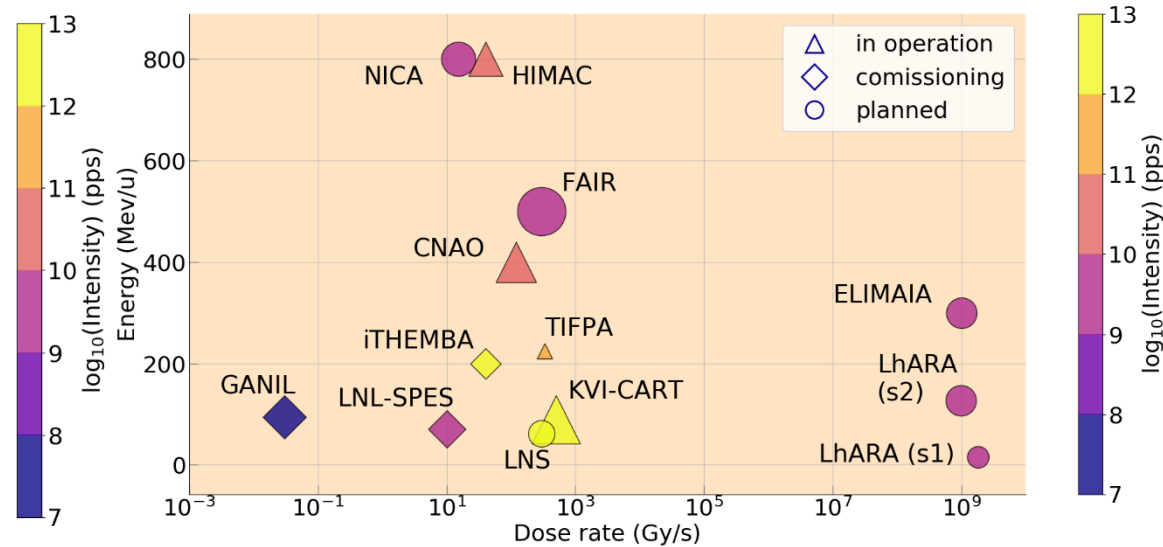
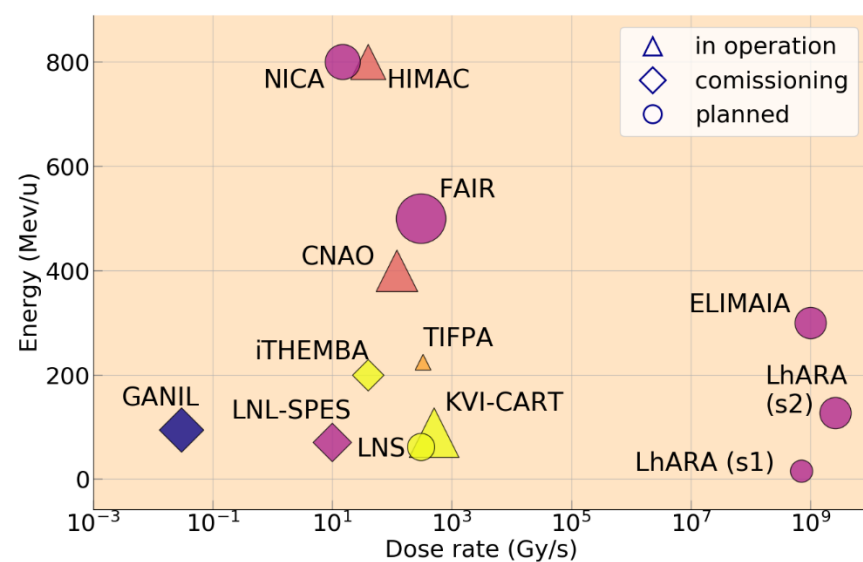
**Imperial College  
London**

# Introduction

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- Status of the pre-CDR.
  - Published as technical note CCAP-TN-01
  - Revision 1.
- Frontiers publication.
- R&D.

# Updates to the pre-CDR



Old

New

- Dose rates updated.
  - Simulation now uses the volume of an ionisation chamber to define the deposited dose.
  - Updates to pulse widths.

Table 1: Summary of expected dose per pulse and dose rates that LhARA can deliver. These estimates are based on Monte Carlo simulations using a bunch length calculated for the energy and particle species for the instantaneous dose rate and the average dose rate is based on the 10 Hz repetition rate of the laser source.

	12 MeV Protons	15 MeV Protons	127 MeV Protons	33.4 MeV/u Carbon
Dose per pulse	7.1 Gy	12.8 Gy	15.6 Gy	73.0 Gy
Instantaneous dose rate	$1.0 \times 10^9$ Gy/s	$1.8 \times 10^9$ Gy/s	$3.8 \times 10^8$ Gy/s	$9.7 \times 10^8$ Gy/s
Average dose rate	71 Gy/s	128 Gy/s	156 Gy/s	730 Gy/s

- Other minor changes and corrections.

# pre-CDR on the wiki

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- Published as technical note CCAP-TN-01
  - Technical notes page on the wiki:
    - <https://ccap.hep.ph.ic.ac.uk/trac/wiki/Communication/Notes>
  - Link to the document:
    - <https://ccap.hep.ph.ic.ac.uk/trac/raw-attachment/wiki/Communication/Notes/CCAP-TN-01.pdf>
- Revision 1
- Management annex
  - <https://ccap.hep.ph.ic.ac.uk/trac/raw-attachment/wiki/Communication/Notes/CCAP-TN-01-Management-annex.pdf>
- Summaries
  - <https://ccap.hep.ph.ic.ac.uk/trac/raw-attachment/wiki/Communication/Notes/CCAP-TN-01-Summaries.pdf>

# Frontiers Publication

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- Paper submitted to Frontiers in Physics – Medical Physics and Imaging  
(<https://www.frontiersin.org/journals/physics/sections/medical-physics-and-imaging> ).
  - Added to the wiki, see <https://ccap.hep.ph.ic.ac.uk/trac/wiki/Communication>
- Added to arXiv <https://arxiv.org/abs/2006.00493>
  - and on the wiki <https://ccap.hep.ph.ic.ac.uk/trac/attachment/wiki/Communication/Publications/2020/LhARA-preCDR-arXiv.pdf>

- LhARA weekly meeting focus shifted from pre-CDR and publication preparation to R&D.
  - Capture section.
    - See
  - Simulation
  - Other topics.
    - Monthly experiment and simulation meetings.
    - BPM for FFA.
- Meeting to discuss radiobiology.
  - First meeting last week.
  - Plan to meet every three weeks.

# Summary

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- Pre-CDR is now published as technical note CCAP-TN-01.
  - Revision 1
- Publication submitted to Frontiers in Physics.
  - arXiv version uploaded.
- Work has started on addressing some of the technical challenges highlighted in the R&D plan.
- Look at other areas that need to be addressed.