

The Laser-hybrid Accelerator for Radiobiological Applications

R&D proposal for the preliminary, pre-construction phase

The LhARA collaboration

This author list was taken from the Frontiers publication and must be updated.

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Executive summary

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¹⁵ Indicative page count: 1

Lay summary

Lead authors: H. Hall, G. Jones

Indicative page count: 1

1 Motivation

20 This line just to allow a reference to check the bibliography [1].

1.1 Overview

Lead authors: A. Giacca, K. Long

Indicative page count: 1

1.2 Scientific case

25 **Lead authors:** J. Parsons, K. Kirkby, Y. Prezado, K. Prise

Indicative page count: 2.5

1.3 Technological advancement

Lead authors: T. Greenshaw, H. Owen, J.B. Lagrange, M. Borghesi, P. McKenna, F. Romano

Indicative page count: 2

30 1.4 Impact

Lead authors: F. Jamieson, W. Luk, P. Price, G. Schettino, S. Towe

Indicative page count: 2

2 LhARA; the Laser-hybrid Accelerator for Radiobiological Application

2.1 Overview

35 **Lead authors:** A. Giacca, K. Long

Indicative page count: 0.75

2.2 Conceptual design

Lead authors: W. Shields, T.S. Dasalu

Indicative page count: 2

40 2.3 Staging

Lead authors: KL, CW

Indicative page count: 0.75

2.4 Timeline for the LhARA initiative

Lead authors: T. Kokolova-Wheldon, K. Kirkby, C. Whyte

45 Indicative page count: 1

3 Preparatory, pre-construction phase proposal

3.1 Project Management

Lead authors: J. Parsons, C. Whyte

Indicative page count: 2.5

50 3.2 Laser-driven proton and ion source

Lead authors: E. Boella, N. Dover, R. Gray

Indicative page count: 2.5

3.3 Proton and ion capture

Lead authors: W. Bertsche, M. Charlton

55 Indicative page count: 2.5

3.4 Real-time dose-deposition profiling

Lead authors: J. Bamber, J. Matheson

Indicative page count: 2.5

3.5 Novel, automated end-station development

60 **Lead authors:** R. McLauchlan, T. Price

Indicative page count: 2.5

3.6 Facility design and integration

Lead authors: J. Pasternak, TBC

Indicative page count: 2.5

65 4 Summary

Lead authors: A. Giacca, K. Long

Indicative page count: 1

References

- [1] **LhARA** Collaboration, G. Aymar *et al.*, “The Laser-hybrid Accelerator for Radiobiological Applications,” 2006.00493.

A Annex: LhARA preliminary, pre-construction phase project specification

A.1 Introduction

Lead authors: A. Giacca, K. Long

Indicative page count: 0.5

75 A.2 Work package details

Lead authors: Work-packages managers, one section per work package.

Indicative page count: 2.5 pages per work package

A.3 Staff effort

Lead authors: KL, CW

80 A.4 Overview of preliminary, pre-construction phase project costs

Lead authors: KL, CW

A.5 Schedule and milestones

Lead authors: KL, CW: digested from WP schedules.

A.6 Risk

85 Lead authors: KL, CW, digested from WP risks

A.7 Outreach and engagement plan

Lead authors: J. Parsons, P. Price

Indicative page count: 2

A.8 Project organisation, management, and reporting

90 Lead authors: KL, CW