

Neutrino Beam from Protvino to KM3NeT/ORCA

Addendum

1 Interested Community

The project is supported by many institutes throughout Europe. Further the following Russian institutions have declared interest:

- A.A. Logunov Institute for High Energy Physics of NRC “Kurchatov Institute”, Protvino represented by S. Ivanov (director), A. Zaitsev (deputy director for science), V. I. Garkusha, F. N. Novoskoltsev, R. Sinyukov, A. A. Sokolov
- Particle Physics division of NRC “Kurchatov Institute”, Moscow, represented by M. Skorokhvatov (head of division), M. Fayfman, E. Litvinovich and I. A. Sokalski
- A.I. Alikhanov Institute for Theoretical and Experimental Physics of NRC “Kurchatov Institute”, Moscow represented by A. Akindinov (head of International Projects Division) and D. Zaborov
- D.V. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow represented by A. S. Chepurinov and E. V. Shirokov
- Joint Institute for Nuclear Research, Dubna represented by V. A. Naumov and I. D. Kakorin

2 Possible time line

The following timeline depends largely on the availability of funds for the individual steps.

- 2018 Construction start of the ORCA detector (already partly financed)
- 2019-2022 P2O design study
- 2022 Completion of ORCA detector
- 2022-2026 Neutrino beam line construction and accelerator upgrade to 90kW
- 2027-2032 P2O “phase 1” data taking with ORCA
- 2027-2035 accelerator upgrade to 450kW (initially in parallel to running at 90kW)
- 2030-2035 Super-ORCA construction
- 2035 Start data taking of “P2O phase 2” with Super-ORCA

Interested people in alphabetical order

A. V. Akhmedov¹, E. G. Anassontzis², M. Ardid³, J. Aublin⁴, B. Baret⁴, V. Bertin⁵, S. Bourret⁴, C. Bozza⁶, M. Bruchner⁷, R. Bruijn^{8,9}, J. Brunner⁵, M. Chabab¹⁰, N. Chau⁴, A. S. Chepurinov¹¹, M. Colomer Molla^{4,17}, P. Coyle⁵, A. Creusot⁴, G. de Wasseige⁴, A. Domi^{5,12,13}, C. Donzaud⁴, T. Eberl⁷, M. Fayfman¹⁴, M. D. Filipović¹⁵, L. Fusco⁴, V. I. Garkusha¹⁶, T. Gal⁷, S. R. Gozzini¹⁷, K. Graf⁷, T. Grégoire⁴, G. Grella⁶, S. Hallmann⁷, A. Heijboer⁸, J. J. Hernández-Rey¹⁷, J. Hofestädt⁷, S. V. Ivanov¹⁶, C. W. James¹⁸, M. de Jong⁸, P. de Jong^{8,9}, P. Kalaczyński¹⁹, I. D. Kakorin²⁰, U. F. Katz⁷, N. R. Khan Chowdhury¹⁷, M. M. Kirsanov²¹, A. Kouchner⁴, V. Kulikovskiy¹², K. S. Kuzmin^{1,14,20}, R. Le Breton⁴, M. Lincetto⁵, E. Litvinovich^{14,22}, D. Lopez-Coto²³, C. Markou²⁴, K. W. Melis⁸, V. A. Naumov²⁰, S. Navas²³, L. Nauta⁸, C. Nielsen⁴, F. N. Novoskoltsev¹⁶, B. Ó Fearraigh⁸, M. Organokov²⁵, G. Papalashvili²⁶, M. Perrin-Terrin⁵, C. Poirè³, T. Pradier²⁵, L. Quinn⁵, D. F. E. Samtleben⁸, J. Seneca⁸, R. Shanidze²⁶, E. V. Shirokov¹¹, A. Sinopoulou²⁴, R. Sinyukov¹⁶, M. D. Skorokhvatov^{14,22}, I. Sokalski¹⁴, A. A. Sokolov¹⁶, B. Spisso^{6,27}, S. M. Stellacci^{6,27}, B. Strandberg⁸, M. Taiuti^{12,13}, T. Thakore¹⁷, E. Tzamariudaki²⁴, V. Van Elewyck⁴, E. de Wolf^{8,9}, D. Zaborov^{1,5}, A. M. Zaitsev¹⁶, J. D. Zornoza¹⁷, and J. Zúñiga¹⁷

¹*A.I. Alikhanov Institute for Theoretical and Experimental Physics of NRC “Kurchatov Institute”, Moscow, Russia*

²*Physics Department, N. and K. University of Athens, Athens, Greece*

³*Universitat Politècnica de València, Instituto de Investigación para la Gestión Integrada de las Zonas Costeras, Gandia, Spain*

⁴*APC, Université Paris Diderot, CNRS/IN2P3, CEA/IRFU, Observatoire de Paris, Sorbonne Paris Cité, Paris, France*

⁵*Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France*

⁶*Università di Salerno e INFN Gruppo Collegato di Salerno, Dipartimento di Fisica, Fisciano, Italy*

⁷*Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen Centre for Astroparticle Physics, Erlangen, Germany*

⁸*Nikhef, National Institute for Subatomic Physics, Amsterdam, Netherlands*

⁹*University of Amsterdam, Institute of Physics/IHEF, Amsterdam, Netherlands*

¹⁰*Cadi Ayyad University, Physics Department, Faculty of Science Semlalia, Marrakech, Morocco*

¹¹*D.V. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russia*

¹²*INFN, Sezione di Genova, Genova, Italy*

¹³*Università di Genova, Genova, Italy*

¹⁴*National Research Centre “Kurchatov Institute”, Moscow, Russia*

¹⁵*Western Sydney University, School of Computing, Engineering and Mathematics, Penrith, Australia*

¹⁶*A.A. Logunov Institute for High Energy Physics of NRC “Kurchatov Institute”, Protvino, Russia*

¹⁷*IFIC – Instituto de Física Corpuscular (CSIC – Universitat de València), Valencia, Spain*

¹⁸*Curtin Institute of Radio Astronomy, Curtin University, Bentley, Australia*

¹⁹*National Centre for Nuclear Research, Warsaw, Poland*

²⁰*Joint Institute for Nuclear Research, Dubna, Russia*

²¹*Institute for Nuclear Research of the Russian Academy of Sciences, Moscow, Russia*

²²*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia*

²³*University of Granada, Dpto. de Física Teórica y del Cosmos & C.A.F.P.E., Granada, Spain*

²⁴*Institute of Nuclear and Particle Physics, NCSR Demokritos, Athens, Greece*

²⁵*Université de Strasbourg, CNRS, IPHC, Strasbourg, France*

²⁶*Tbilisi State University, Department of Physics, Tbilisi, Georgia*

²⁷*INFN, Sezione di Napoli, Complesso Universitario di Monte S. Angelo, Napoli, Italy*