



NUMEN

**Determining the Nuclear Matrix Elements of Neutrinoless Double
Beta Decays by Heavy-Ion Double Charge Exchange Reactions**

Organization (January 2020)

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Work Packages

| WP | COORDINATOR <i>COMPONENTS</i> | FORESEEN ACTIVITY |
|------|--|--|
| WP_0 | F.Cappuzzello, C.Agodi | SPOKESPERSON Scientific responsibility; Interface with the external; WP coordination activities; Coordinating resources and collaborations; MAGNEX upgrade |
| WP_1 | M.Cavallaro <i>L.Acosta, P.Adsley, C.Agodi, C.Altana, P.Amador Valenzuela, T.Borello Lewin, I.Boztosun, G.A.Brischetto, S.Calabrese, D.Calvo, L. Campajola, V.Capirossi, F.Cappuzzello, D.Carbone, M.Cavallaro, E.R.Chávez Lomelí, R.Chen, I.Ciraldo, M.Cutuli, F.Delaunay, N.Deshmukh, H.Djapo, P.Finocchiaro, S.Firat, M.Fisichella, A.Foti, E. Gandolfo, A.Hacisalihoglu, L.La Fauci, F.Iazzi, H.Jivan, G.Lanzalone, R.Linares, J.Ma, N.Medina, D.R.Mendes, M. Moralles, R.Neveling, J.R.B.Oliveira, A.Pakou, L.Pandola, L.Pellegrini, H.Petrascu, F.Pinna, S.Reito, P.Ries, G.Russo, R.B.B.Santos, O.Sgouros, M.A.G.daSilveira, S.O.Solakci, V.Soukeras, G.Souliotis, A.Spatafora, D.Torresi, S.Tudisco, J.S.Wang, Y.Y.Yang, A.Yildirin, V.A.B.Zagatto</i> | MAGNEX-EXPERIMENTS Experiment set up; Facility optimization; Experiment shifts; Data taking |
| WP_2 | D.Carbone, R.Linares <i>C.Agodi, P.Amador-Valenzuela, G.A.Brischetto, S.Calabrese, F.Cappuzzello, D.Carbone, M.Cavallaro, I.Ciraldo, M.Cutuli, F.Delaunay, N.Deshmukh, S.Firat, M.Fisichella, A.Hacisalihoglu, L.La Fauci, R.Linares, D.R.Mendes, A.Pakou, O.Sgouros, M.A.G.daSilveira, S.O.Solakci, V.Soukeras, A.Spatafora, D.Torresi, V.A.B.Zagatto</i> | DATA REDUCTION Extraction of energy spectra and absolute cross sections |
| WP_3 | D.Torresi <i>L.Acosta, P.Adsley, C.Agodi, G.A.Brischetto, D.Calvo, F.Cappuzzello, D.Carbone, M.Cavallaro, E.R.Chávez Lomelí, I. Ciraldo, H.Djapo, H.Jivan, Y.Kucuk, D.LoPresti, R.Neveling, L.Pellegrini, H.Petrascu, D.Torresi, A.Yildirin</i> | GAS TRACKER Design, building and test of the gas prototype and of the final tracker |
| WP_4 | S.Tudisco, D.Carbone^{b,c} <i>C.Agodi, C.Altana, G.A.Brischetto, S.Calabrese, F.Cappuzzello, D.Carbone, M.Cavallaro, G.Lanzalone, F.La Via, S.Tudisco</i> | PARTICLE IDENTIFICATION SYSTEM Building prototypes and tests with SiC technology; Drawing final detector; Building the final detector |

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| WP_6 | J.R.B.Oliveira, P.Finocchiaro <i>C.Agodi, P.Adsley, I.Boztosun, L. Campajola, F.Cappuzzello, H.Djapo, P.Finocchiaro, D.C. Flechas Garcia, E. Gandolfo, H.Jivan, Y.Kucuk, R.Linares, N.Medina, D.R.Mendes, M.Morales, R.Neveling, J.R.B.Oliveira, L.Pellegrini, N.Pietralla, P.Ries, S.O.Solakci, V.Werner, A.Yildirim, V.A.B.Zagatto</i> | GAMMA-RAYS DETECTOR Choice of the scintillator; Building prototypes; Test of prototypes; Design of the final detector |
| WP_7 | M.Colonna, E.Santopinto^d <i>N.Auerbach, J.Barea, J.Bellone, R.Bijker, V.Branchina, S. Burrello, E.N. Cardoso, M.Colonna, D. Gambacurta, J.L.Ferreira, J.Ferretti, H.Garcia-Tecocoatzi, J.Kotila, J.A.Lay, H.Lenske, J.Lubian, G.Russo, E.Santopinto, R.I.M.Vsevolodovna</i> | THEORY Folding of nuclear structure and reaction models; Development of microscopic DCE theory; Extraction of matrix elements from DCE cross sections |
| WP_8 | L.Calabretta <i>L.Calabretta, L. Campajola, G.D'Agostino, A.D.Russo</i> | BEAM LINES UPGRADE Beam transport line, beam dump |
| WP_9 | D.Calvo <i>C.Agodi, S.Brasolin, O.Brunasso, L.Calabretta, D.Calvo, V.Capirossi, D.Carbone, F.Cappuzzello, M.Cavallaro, F.Delaunay, C.Ferraresi, P.Finocchiaro, F.Iazzi, P.Mereu, H.Petrascu, J.R.B.Oliveira, L.Pandola, F.Pinna, D. Sartirana, L.Serbina, S.Tudisco</i> | INTEGRATION Mechanical integration of devices; Design and construction of vacuum chambers; |
| WP_10 | L.Pandola <i>I.Boztosun, G.A.Brischetto, S.Calabrese, D.Carbone, D.C. Flechas Garcia, P.Finocchiaro, M.Morales, J.R.B.Oliveira, L.Pandola, O.Sgouros, V.Soukeras, A.Spatafora, A.Yildirim</i> | COMPUTATION DAQ; Computation; Simulations; Storage; Web management |
| WP_11 | P.Finocchiaro^e <i>C.Agodi, D. Bonanno, G.A.Brischetto, S.Calabrese, L.Campajola, F.Cappuzzello, D.Carbone, M.Cavallaro, R.Chen, E. Gandolfo, G.De Geronimo, P.Finocchiaro, R. Linares, J.Ma, N.Medina, D.R.Mendes, J.R.B.Oliveira, S.Reito, R.B.B.Santos, M.A.G.da Silveira, J.S.Wang, Y.Y.Yang, V.A.B.Zagatto</i> | CsI FOR PID Study of CsI technology for NUMEN PID; Construction of crystals and assembly with suitable read-out systems; Project of final detectors; Building of the final detector; Front-end electronics; Readout electronics; Data acquisition |
| WP_12 | F.Iazzi <i>L.Acosta, C.Agodi, O.Brunasso, D.Calvo, V, Capirossi, F.Cappuzzello, L.E.Charon Garcia, E.Chavez Lomeli, F.Delaunay, K.De Los Rios, C.Ferraresi, M.Fisichella, A.Huerta Hernandez, D.J.Marin Lambarri, J.Mas Ruiz, J.R.B.Oliveira, F.Pinna, H.Vargas Hernandez, V.A.B.Zagatto</i> | DEVELOPMENT OF RADIATION TOLERANT TARGETS |

^a Collaboration with Prof. W. Mittig, Dr. M. Cortesi and Dr. D. Bazin MSU.

^b Collaboration with STM microelectronics.

^c Synergy with INFN CALL SICILIA.

^d Collaboration with R. A. Broglia (Niels Bohr Institute Copenhagen); O. Civitarese (La Plata University), A. Gargano (INFN-Na), G. De Gregorio (INFN-Na), G. Potel (MSU)

^e Collaboration with G. Cosentino (INFN-LNS), A. Pappalardo (IFIN)

Technical Board

| TB | COMPONENTS | FORESEEN ACTIVITY |
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| Board | F.Cappuzzello, C.Agodi <i>C.Agodi, L.Calabretta, D.Calvo, F.Cappuzzello, D.Carbone, M.Cavallaro, M.Colonna, P.Finocchiaro, F.Iazzi, R.Linares, J.R.B.Oliveira, L.Pandola, E.Santopinto, D.Torresi, S.Tudisco</i> | WP coordination activities; Publications management; Conferences management |

Publication Committee

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| | <i>D.Calvo, D. Carbone, S. Tudisco</i> | Publications management |

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| | <i>M. Cavallaro, M. Colonna, J.R.B. Oliveira, L. Pandola</i> | Conferences management |