NUMEN

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

Organization (01 January 2019)

Spokespersons: F. Cappuzzello (cappuzzello@lns.infn.it) and C. Agodi (agodi@lns.infn.it)

Participants

C. Agodi[1], C. Altana[1], J. I. Bellone[1], D. Bonanno[2], V. Branchina[2,3], S. Brasolin[4], G. Brischetto[1,3,6], O. Brunasso[4], S. Burrello[1], S. Calabrese[1,3], L. Calabretta[1], D. Calvo[4], V. Capirossi[4,6], F. Cappuzzello[1,3], D. Carbone[1], M. Cavallaro[1], I. Ciraldo[1,3], M. Colonna[1], G. D'Agostino[1], F. Delaunay[4,6,12], C. Ferraresi[4,7], J. Ferretti[8,13], P. Finocchiaro[1], M. Fisichella[4], A. Foti[2], G. Gallo[1,3], H. Garcia-Tecocoatzi[8,9], F. Iazzi[4,5], L. La Fauci[1,3], G. Lanzalone[1,10], F. La Via[11], D. Lo Presti[2,3], P. Mereu[4], L. Neri[1], L. Pandola[1], F. Pinna[4,6], S. Reito[2], A. D. Russo[1], G. Russo[2,3], E. Santopinto[8], O. Sgouros[1], V. Soukeras[1], A. Spatafora[1,3], D. Torresi[1], S. Tudisco[1], R.I.M. Vsevolodovna[8,9]

[1] *Istituto Nazionale di Fisica Nucleare, Laboratori Nazionali del Sud , Italy*

[2] *Istituto Nazionale di Fisica Nucleare, Sezione di Catania, Italy*

[3] *Dipartimento di Fisica e Astronomia "Ettore Majorana", Università di Catania, Italy*

[4] *Istituto Nazionale di Fisica Nucleare, Sezione di Torino, Italy*

[5] *Centro Siciliano di Fisica Nucleare e Struttura della Materia, Italy*

[6] *DISAT, Politecnico di Torino, Italy*

[7] *DIMEAS, Politecnico di Torino, Italy*

[8] *Istituto Nazionale di Fisica Nucleare, Sezione di Genova, Italy*

[9] *Dipartimento di Fisica, Università di Genova, Italy*

[10] *Università degli Studi di Enna "Kore", Italy*

[11] *CNR-IMM, Sezione di Catania, Italy*

[12] *LPC Caen, Normandie Université, ENSICAEN, UNICAEN, CNRS/INP3, France*

[13] *Department of Physics, Yale University, USA*

T. Borello-Lewin[14], J.L. Ferreira[15], R. Linares[15], J. Lubian[15], N. H. Medina[14], D.R. Mendes[15], M. Moralles[16], J. R. B. Oliveira[14], M.R.D. Rodrigues[14], R.B.B. Santos[17], M.A.G. da Silveira[17] , V.A.B. Zagatto[15]

[14] Instituto de Fisica, *Universidade de Sao Paulo, Brazil*

[15] Instituto de Fisica, *Universidade Federal Fluminense, Brazil*

[16] *Instituto de Pesquisas Energeticas e Nucleares IPEN/CNEN, Brazil*

[17] *Centro Universitario FEI Sao Bernardo do Campo, Brazil*

A. Pakou[18], G. Souliotis[19]

[18] Department of Physics and HINP, University of Ioannina, Greece

[19] Department of Chemistry, National and Kapodistrian University of Athens, Greece

L. Acosta[20], P. Amador-Valenzuela[21], R. Bijker[22], L.E. Charon Garcia[20], E .R. Chávez Lomelí[20], K. De Los Rios[20], A. Huerta-Hernandez[20], D. Marín-Lámbarri[20], J. Mas Ruiz[20], H. Vargas Hernandez[20]

[20] Instituto de Fìsica, Universidad Nacional Autónoma de México, Mexico

[21] Instituto Nacional de Investigaciones Nucleares, Mexico

[22] Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, Mexico

H. Lenske[23], N. Pietralla[24], P. Ries[24], V. Werner[24]

[23] Department of Physics, University of Giessen, Germany

[24] Institut fur Kernphysik, Technische Universitat Darmstadt, Germany

I. Boztosun[25], H. Djapo[25], S. Firat[25], A. Hacisalihoglu[26], Y. Kucuk[25], S.O. Solakcı[25], A. Yildirin[25]

[25] Department of Physics, Akdeniz University, Turkey

[26] *Institute of Natural Sciences, Karadeniz Teknik University, Turkey*

N. Auerbach[27]

[27] School of Physics and Astronomy, Tel Aviv University, Israel

J.A. Lay[28]

[28] Departamento de FAMN, University of Seville, Spain

H. Petrascu[29], L. Serbina[29]

[29] *Department of Nuclear Physics, Horia Hubulei National Institute of Ph*ysics and Nuclear Engineering, IFIN-HH, Romania

N. Deshmukh[30]

[30] Nuclear Physics Division, Saha Institute of Nuclear Physics, India

J. Kotila[31]
[31] University of Jyväskylä, Finland

G. De Geronimo[32]
[32] Stony Brook University, USA

R. Chen[33], J. Ma[33], J.S. Wang[33], Y.Y. Yang[33]
[33] Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou, China

J. Barea[34]
[34] *Departamento de Fìsica, Universidad de Conception, Chile*

Work Packages

WP	COORDINATOR *COMPONENTS*	FORESEEN ACTIVITY	INSTITUTION
WP_0	**F.Cappuzzello, C.Agodi**	**SPOKESPERSON** Scientific responsibility; Interface with the external; WP coordination activities; Coordinating resources and collaborations; MAGNEX upgrade	[1] [3]
WP_1	**M.Cavallaro** *L.Acosta, C.Agodi, C.Altana, P.Amador-Valenzuela, D.Bonanno, T.Borello-Lewin, I.Boztosun, G.Brischetto, S.Calabrese, D.Calvo,V.Capirossi, F.Cappuzzello, D.Carbone, M.Cavallaro, E.R.Chávez Lomelí, R.Chen, I.Ciraldo, F.Delaunay, N.Deshmukh, H.Djapo, P.Finocchiaro, S.Firat, M.Fisichella, A.Foti, G.Gallo, A.Hacisalihoglu, F.Iazzi, G.Lanzalone, R.Linares, D.Lo Presti, J.Ma, N.Medina, D.R.Mendes, M. Moralles, J.R.B.Oliveira, A.Pakou, L.Pandola, H.Petrascu, F.Pinna, S.Reito, P.Ries, M.R.D.Rodrigues, G.Russo, R.B.B.Santos, O.Sgouros, M.A.G.daSilveira, S.O.Solakcı, V.Soukeras, G.Souliotis, A.Spatafora, D.Torresi, S.Tudisco, J.S.Wang, Y.Y.Yang, A.Yildirin, V.A.B.Zagatto*	**MAGNEX-EXPERIMENTS** Experiment set up; Facility optimization; Experiment shifts; Data taking	[1] [2] [3] [4] [5] [6] [10] [12] [14] [15] [16] [17] [18] [19] [20] [21] [22] [24] [25] [26] [30] [33]
WP_2	**D.Carbone, R.Linares** *C.Agodi, P.Amador-Valenzuela, S.Calabrese, F.Cappuzzello, D.Carbone, M.Cavallaro, D.Calvo, I.Ciraldo, F.Delaunay, N.Deshmukh, S.Firat, M.Fisichella, A.Hacisalihoglu, L.LaFauci, R.Linares, D.R.Mendes, A.Pakou, F.Pinna, M.R.D.Rodrigues, O.Sgouros, M.A.G.daSilveira, S.O.Solakcı, V.Soukeras, A.Spatafora, D.Torresi, V.A.B.Zagatto*	**DATA REDUCTION** Extraction of energy spectra and absolute cross sections	[1] [3] [4] [6] [12] [15] [17] [18][20] [21] [26] [30]
WP_3	**M.Cavallaro, D.Torresi[a]** *L.Acosta, C.Agodi, D.Bonanno, D.Calvo, F.Cappuzzello, D.Carbone, M.Cavallaro, E.R.Chávez Lomelí, H.Djapo, G.Gallo, Y.Kucuk, D.LoPresti, H.Petrascu, D.Torresi, A.Yildirin, V.A.B.Zagatto*	**GAS TRACKER** Design, building and test of the gas prototype and of the final tracker	[1] [2] [3] [4] [15] [20] [25][29]

WP_4	**S.Tudisco, D.Carbone[b,c]** *C.Agodi, C.Altana, F.Cappuzzello,* *D.Carbone, M.Cavallaro, G.Lanzalone,* *F.LaVia, S.Tudisco,*	**PARTICLE IDENTIFICATION SYSTEM** Building prototypes and tests with SiC technology; Drawing final detector; Building the final detector	[1] [3] [10] [11]
WP_5	**D.LoPresti** *D.Bonanno, G.DeGeronimo, G.Gallo,* *R.Linares, D.LoPresti, N.Medina,* *D.R.Mendes, J.R.B.Oliveira, S.Reito,* *R.B.B.Santos, M.A.G.daSilveira,* *V.A.B.Zagatto*	**ELECTRONICS** Front-end electronics; Readout electronics; Slow-control; Data acquisition; Rad-hard electronic devices	[1] [2] [3] [14] [15] [16] [17] [32]
WP_6	**J.R.B.Oliveira, P.Finocchiaro** *C.Agodi, I.Boztosun, F.Cappuzzello,* *H.Djapo, P.Finocchiaro, Y.Kucuk, R.Linares,* *N.Medina, D.R.Mendes, M.Moralles,* *J.R.B.Oliveira, N.Pietralla, P.Ries,* *S.O.Solakcı, V.Werner, A.Yildirin,* *V.A.B.Zagatto*	**GAMMA-RAYS DETECTOR** Choice of the scintillator; Building prototypes; Test of prototypes; Design of the final detector	[1] [3] [14] [15] [16] [24] [25]
WP_7	**M.Colonna, E.Santopinto[d]** *N.Auerbach, J.Barea, J.Bellone, R.Bijker,* *V.Branchina, S. Burrello, M.Colonna,* *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*	**THEORY** Folding of nuclear structure and reaction models; Development of microscopic DCE theory; Extraction of matrix elements from DCE cross sections	[1] [2] [3] [8] [9] [13] [15] [22] [23] [27] [28] [31] [34]
WP_8	**L.Calabretta** *L.Calabretta, G.D'Agostino, L.Neri,* *A.D.Russo*	**BEAM LINES UPGRADE** Beam transport line, beam dump	[1]
WP_9	**D.Calvo[e]** *C.Agodi, S.Brasolin, O.Brunasso,* *L.Calabretta, D.Calvo, V.Capirossi,* *D.Carbone, F.Cappuzzello, M.Cavallaro,* *F.Delaunay, C.Ferraresi, P.Finocchiaro,* *M.Fisichella, F.Iazzi, D.LoPresti, P.Mereu,* *H.Petrascu, J.R.B.Oliveira, L.Pandola,* *F.Pinna, L.Serbina, S.Tudisco,*	**INTEGRATION** Mechanical integration of devices; Design and construction of vacuum chambers; Development of radiation tolerant targets	[1] [2] [3] [4] [6] [7] [12] [14] [15] [29]
WP_10	**L.Pandola** *I.Boztosun, G.Brischetto, S.Calabrese,* *D.Carbone, P.Finocchiaro, G.Gallo,* *L.Pandola, O.Sgouros, A.Yildirin*	**COMPUTATION** DAQ; Computation; Simulations; Web management	[1] [3] [5] [25]
WP_11	**P.Finocchiaro[f]** *C.Agodi, F.Cappuzzello, D.Carbone,* *M.Cavallaro, R.Chen, P.Finocchiaro, J.Ma,* *J.S.Wang, Y.Y.Yang*	**CsI FOR PID** Study of CsI technology for NUMEN PID; Construction of cristals and assembly with suitable read-out systems;	[1] [3] [33]

		Project of final detectors; Building of the final detector	
WP_12	**F.Iazzi** *L.Acosta, C.Agodi, O.Brunasso, D.Calvo, F.Cappuzzello, L.E.CharonGarcia, E.Chavez-Lomelì, F.Delaunay, K.DeLosRios, C.Ferraresi, M.Fisichella, A.Huerta Hernandez, D.J.Marin-Lambarri, J.MasRuiz, J.R.B.Oliveira, F.Pinna, H.VargasHernandez, V.A.B.Zagatto*	**DEVELOPMENT OF RADIATION TOLERANT TARGETS**	[1] [3] [4] [6] [7] [12] [14] [15] [20]

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

[b] Collaboration with STM microelectronics and FBK Companies.

[c] Synergy with INFN CALL SICILIA.

[d] Collaboration with Prof. R. Broglia (Niels Bohr Institute Copenhagen); Prof. O. Civitarese (La Plata University), Dr. G. Potel (MSU)

[e] Collaboration with Prof. H. Werner-Becker (University of Bochum)

[f] Collaboration with G. Cosentino (INFN-LNS)

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