

NINPHA anagrafica 2020

Santopinto(50%) Responsabile

Saracco(40%)

Post Doc: Ruslan Magana Vosevolodovna (20%), Alessandro Pilloni (50%)

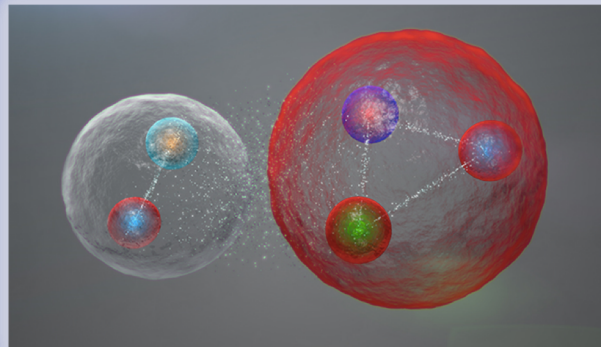
Dottorandi: Alessandro Giachino, finisce a Marzo 2020

Collaborazioni 2020

Luciano Maiani, Craig Roberts(Argonne, PHY), Stanley Brodsky (Stanford U.),Atsushi Hosaka (Osaka U.), Takeuchi(Osaka U.), MatotoTakizawa (RIKEN), Iachello(Yale U.), Bijker (UNAM), Polosa, Szczpaniack (JLAB, Indiana U.), Yamaaguchi (RIKEN), Bing-Song Zou and Feng-Kun Guo (Chinese Academy of Sciences, Beijing)

Main result:

Our interpretation of the LHC_b pentaquark as a baryon meson- molecule (based on Lagrangians that respect both Heavy Quark Spin Symmetry and Chiral Symmetry) with a 5 quark core seems to be the only one able to reproduce all the LHC_b pentaquark states with both their masses and widths (see Yamaguchi, Santopinto, PRD 2017) and Phys. Rev. Letter to be submitted with the Osaka collaborators.



Publicazioni 2018-2019

- [1] M. N. Anwar, J. Ferretti, Feng-Kun Guo, E. Santopinto, Bing-Song Zou. Spectroscopy and decays of the fully-heavy tetraquarks. *EUR.PHYS. J. C78 (2018) no.8, 647*
- [2] J. Ferretti and E. Santopinto. Open-flavor strong decays of open-charm and open-bottom mesons *PHYS. REV. D, 97(11), 2018.*
- [3] J. Ferretti and E. Santopinto. Threshold effects in $\chi_{c(2P)}$ and $\chi_{b(3P)}$ multiplets and $J/\Psi\rho$, $J/\Psi\omega$ hidden-flavor strong decays of the $X(3872)$. *PHYS. LETTER B 2018*
- [4] J. Ferretti, E. Santopinto, M. N. Anwar, and M. A. Bedolla. The baryoquarkonium picture for hidden-charm and bottom pentaquarks and LHCb $P_c(4380)$ and $P_c(4450)$ states, *PHYS. LETTER B 2018.*
- [5] S. Lombardo et al., Photoproduction of K^+K^- meson pairs on the proton, *PHYS. REV. D98 (2018) no.5, 052009*
- [6] M. N. Anwar, J. Ferretti, E. Santopinto, Spectroscopy of the hidden charm $[qc][\text{anti}q \text{ anti}c]$ and $[sc][\text{anti} s \text{ anti}c]$, *PHYS. REV. D98 (2018), 094015*
- [7] FCC collaboration, *Eur.Phys.J. C79 (2019) no.6, 474*
- [8] FCC collaboration, *Eur.Phys.J.ST 228 (2019) no.2, 261-623*

- [1] N. Chentre, P. Saracco, S. Dulla and P. Ravetto, Mathematical foundation of the neutron diffusion problem for a reflected nuclear reactor, *Eur. Phys. J. Plus* (2018) 133, 432
- [2] N. Chentre , P. Saracco et al., On the prompt time eigenvalue estimation for subcritical multiplying systems, N. Chentre, P. Saracco , S. Dulla, P. Ravetto, **Ann.of Nucl. En. 132** (2019) 172
- [3] S. Dulla, P. Ravetto, and P. Saracco, The time eigenvalue spectrum for nuclear reactors in multi-group diffusion theory, **Eur. Phys. J. Plus** (2018) 133: 390
- [4] N. Riva et al., **EEE Trans.App. Sup.** 28, NO. 4, JUNE 2018
- [5] K. Altenmueller et al., A calorimeter for the precise determination of the activity of the ^{144}Ce - ^{144}Pr anti-neutrino source in the SOX experiment, **JINST 13 (2018)no.09, P09008**
- [6] N. Riva , V. Calvelli , R. Musenich , S. Farinon , S. Lotti, and P. Saracco, *IEEE Transac. on Appl. Superc.*28, n.4(2018)
- [7] F.Panza et al., An ADS irradiation facility for fast and slow neutrons ,*Eur. Phys. J. Plus* (2019) 134: 195
- [8] S. Dulla, P. Ravetto and P. Saracco, The time eigenvalue spectrum for nuclear reactors in multi-group diffusion theory, *Eur. Phys. J. Plus* (2018) 133: 390

Argomenti 2020

Stati a multiquark, spettroscopia

Fisica del favour

Astrofisica nucleare (studio di reazioni di interesse per capire il finzionamento delle stelle)

Dark Matter

Equazioni di trasporto

NUMEN

Responsabile locale Santopinto

Santopinto (30%)

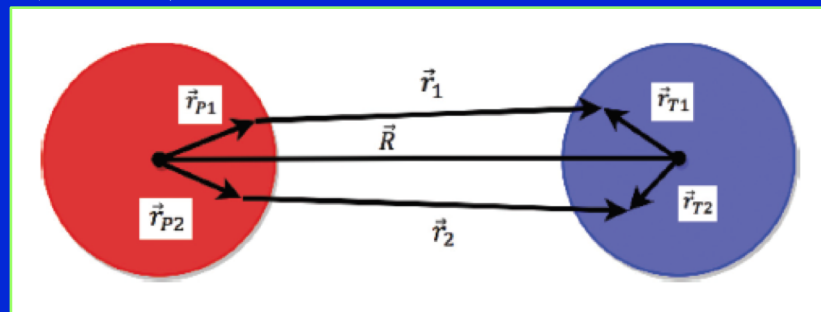
Post Doc Ruslan Magagna Vlevosdna (80%)



Principale Risultato 2018/2019:

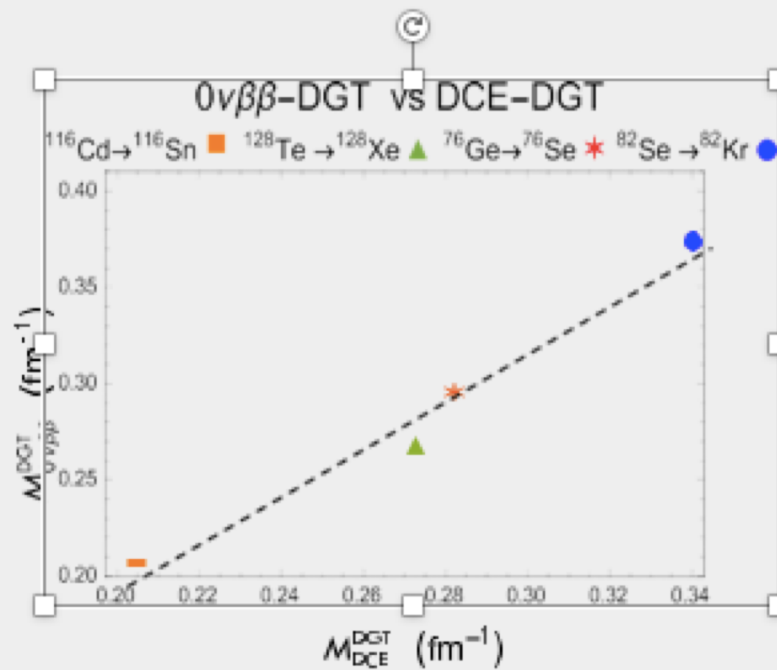
Per l'Heavy Ion Double Charge Exchange (DCE) non esisteva teoria. Abbiamo sviluppato e pubblicato la prima teoria del DCE e mostrato che in Eiconal approximation e angoli in avanti piccoli la sezione d'urto si fattorizza in parte di reazione e parte nucleare e ricavato per la prima volta la forma esplicita degli elementi di matrice di DCE-DGT e DCE-DF e mostrato che sono in correlazione lineare con quelli di $0\nu\beta\beta$ decay.

E. Santopinto, H. Garca-Tecocoatzi, R. I. Magaa-Vsevolodovna, and J.Ferretti. Heavy-ion double-charge-exchange and its relation toneutrinoless double-beta decay, *Rapid Communication PHYS. REV. C98, 061601(2018)*



Linear Correlation of DGT NME's

PHYSICAL REVIEW C 98, 061601(R) (2018)



Pubblicazioni 2018-2019

- [1] E. Santopinto, H. Garca-Tecocoatzi, R. I. Magaa-Vsevolodovna, and J. Ferretti. Heavy-ion double-charge-exchange and its relation to neutrinoless double-beta decay, *Rapid Communication PHYS. REV. C98, 061601(2018)*
- [2] F. Cappuzzello et al., The NUMEN project: NUClear Matrix Elements for Neutrinoless double beta decay, *EUROPHYS. JOUR. A, 54(5), 2018*
- [3] G. Santagati, B. Paes, R. Magana Vsevolodovna, F. Cappuzzello, D. Carboni, E. N. Cardozo, M. Cavallaro, H. Garcia-Tecocoatzi, A. Gargano, J. L. Ferreira, S. M. Lenzi, R. Linares, E. Santopinto, A. Vitturi, and J. Lubian., STUDY OF THE O-18+Ni-64 TWO NEUTRON TRANSFER REACTION AT 84 MeV BY MAGNEX., *ACTA PHYSI. POL. B, 49(3): 381, 2018.*
- [4] Challenges in double charge exchange measurements for neutrino physics, NUMEN, CERN Proc. 1, 233, 2019