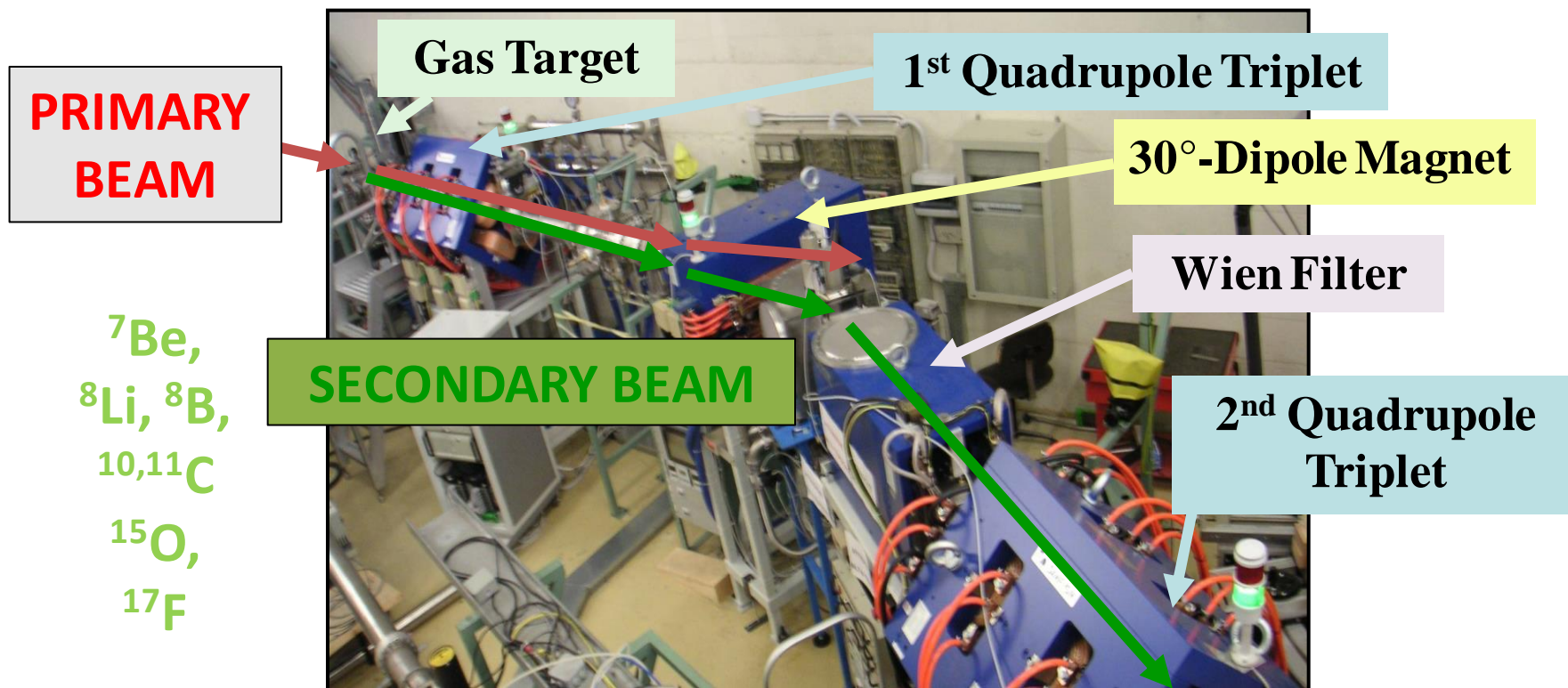


EXOTIC (6 ricercatori, 4.0 FTE)

NA (2.7 FTE) M. La Commara (0.4), G. La Rana (0.3),
C. Parascandolo (1.0), D. Pierroutsakou (1.0)

PD (1.3 FTE): M. Mazzocco (1.0), F. Soramel (0.3)

- 1) Reaction mechanisms and the structure of weakly bound stable and exotic nuclei and measurements of astrophysical interest with RIBs **(PD)**
- 2) Collective modes: Study of the pre-equilibrium dipole γ ray emission in dissipative heavy-ion reactions **(NA)**



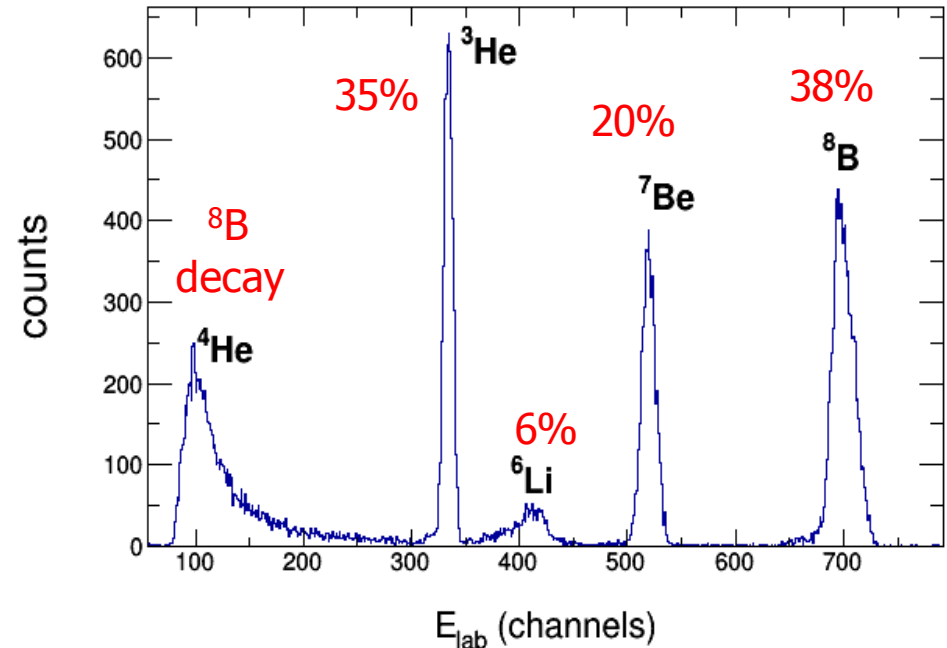
Experiments: July 2017 – June 2018

$^9\text{Be}+^1\text{H}$ (LNS, Sept. 2017)



Elastic Scattering and Breakup
MAGNEX+EXPADES

^8B Beam Development (LNL, May 2018)

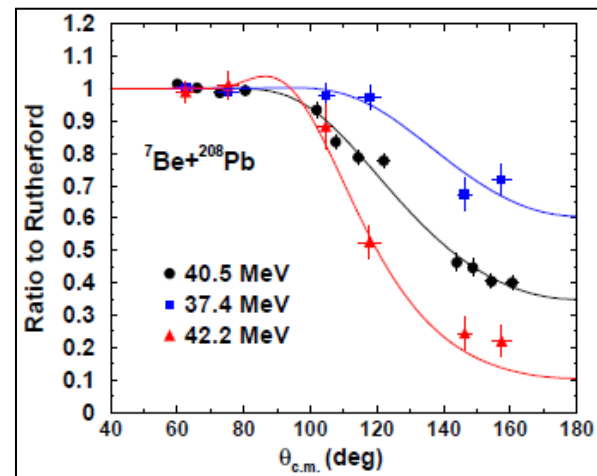
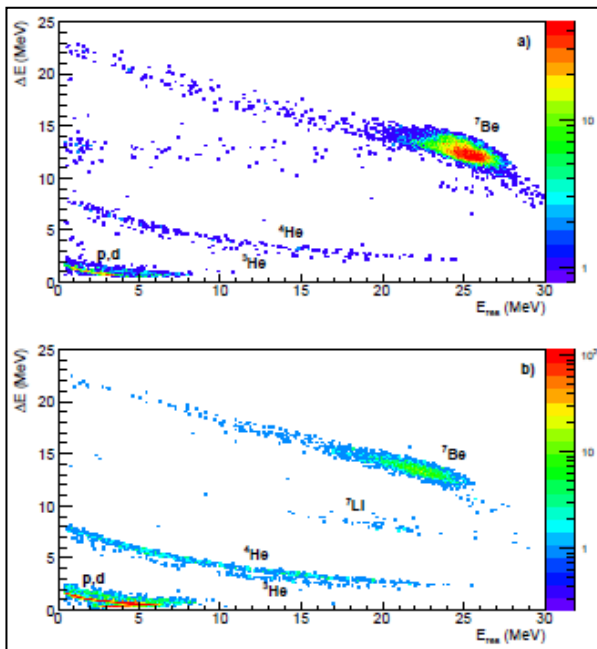


Energy spectrum of the cocktail beam

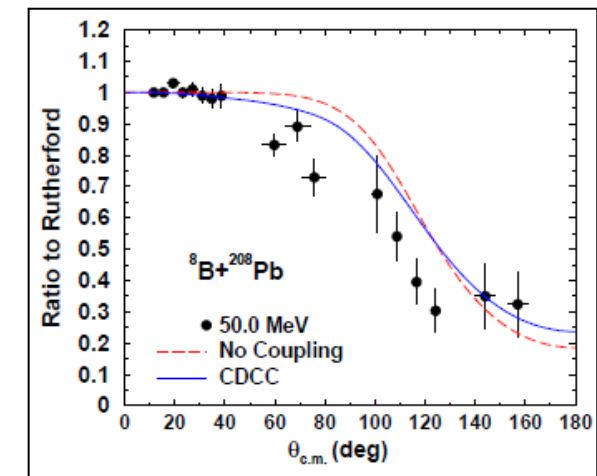
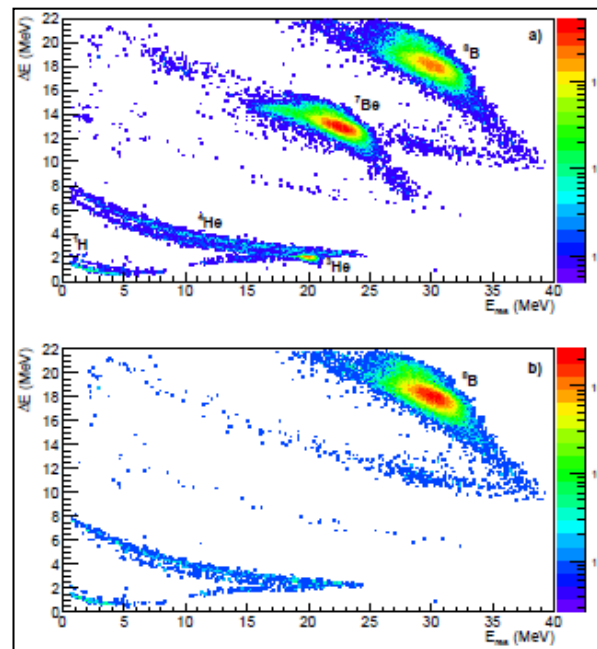
Average $^6\text{Li}^{3+}$ ($^8\text{B}^{5+}$ rate) intensity during the run: 100 pA (500 pps)

Data Analysis: July 2017 – June 2018

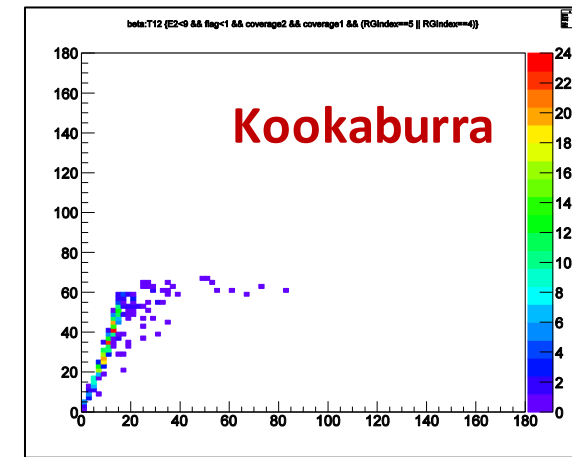
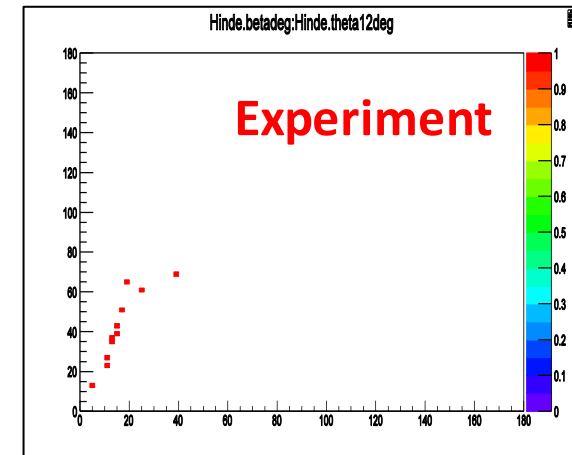
${}^7\text{Be}+{}^{208}\text{Pb}$ Elastic Scattering



${}^8\text{B}+{}^{208}\text{Pb}$ Elastic Scattering



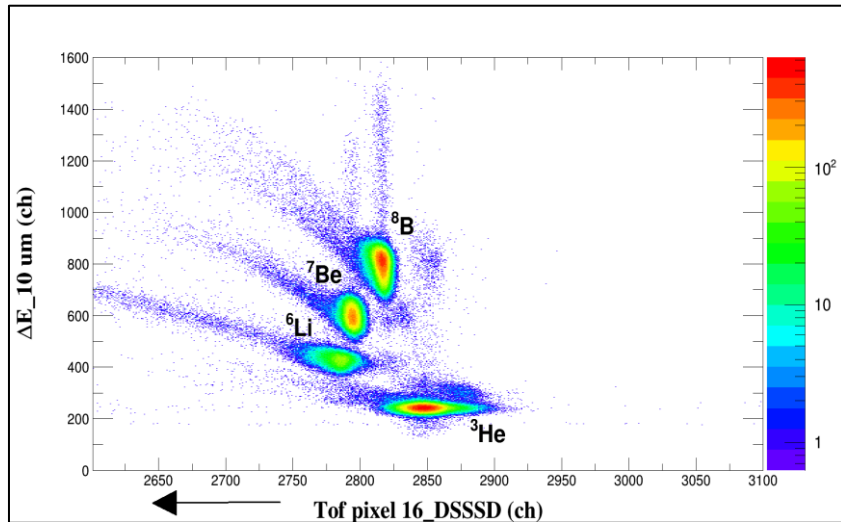
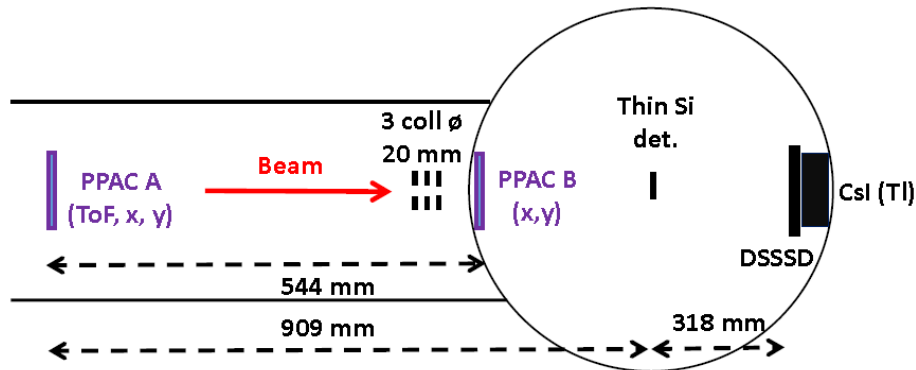
${}^7\text{B}+{}^{208}\text{Pb}$ Direct Processes



${}^2\text{H}+{}^4\text{He}$ $\theta_{12}-\beta$
correlation plot

Activity: July 2018 – June 2019

$^7\text{Be} + ^{28}\text{Si}$ Reaction Cross Section, 9 Days (LNL)



Different beams identified by means of the ΔE -ToF technique

^{18}Ne Beam Development, 2 Days (LNL)

	^{18}Ne
Primary Beam	^{16}O
Energy	86 MeV
Intensity	50-100 pA
Reaction	$^3\text{He}(^{16}\text{O}, ^{18}\text{Ne})n$
Q-value	-3.19 MeV
Cross section	50 mb
Gas target	cryogenic ^3He at 1 bar
Secondary Beam	^{18}Ne
Energy	30 MeV
Transmission	1%
Intensity	2.5×10^5 pps

Goal: Investigation of the reaction $^{18}\text{Ne} + ^4\text{He}$ (breakout of the Hot-CNO cycle)

Publications: July 2017 – June 2018

PHYSICAL REVIEW C **95**, 054609 (2017)

Elastic scattering of ${}^7\text{Be} + {}^{28}\text{Si}$ at near-barrier energies

O. Sgouros,¹ A. Pakou,^{1,*} D. Pierroutsakou,² M. Mazzocco,^{3,4} L. Acosta,^{5,6} X. Aslanoglou,¹ Ch. Betsou,¹ A. Boiano,² C. Boiano,⁷ D. Carbone,⁸ M. Cavallaro,⁸ J. Grebosz,⁹ N. Keeley,¹⁰ M. La Commara,^{2,11} C. Manea,⁴ G. Marquínez-Durán,¹² I. Martel,¹² N. G. Nicolis,¹ C. Parascandolo,² K. Rusek,¹³ A. M. Sánchez-Benítez,^{12,14} C. Signorini,¹⁵ F. Soramel,^{3,4} V. Soukeras,¹ C. Stefanini,³ E. Stiliaris,¹⁶ E. Strano,^{3,4} I. Strojek,¹⁰ and D. Torresi^{3,4}

PHYSICAL REVIEW C **96**, 044317 (2017)

Evidence for ${}^{15}\text{O} + \alpha$ resonance structures in ${}^{19}\text{Ne}$ via direct measurement

D. Torresi,^{1,2,3} C. Wheldon,^{1,*} Tz. Kokalova,¹ S. Bailey,¹ A. Boiano,⁴ C. Boiano,⁵ M. Fisichella,² M. Mazzocco,^{6,7} C. Parascandolo,⁴ D. Pierroutsakou,⁴ E. Strano,^{6,7} M. Zadro,⁸ M. Cavallaro,² S. Cherubini,^{2,3} N. Curtis,¹ A. Di Pietro,² J. P. Fernández García,² P. Figuera,² T. Glodariu,⁹ J. Grębosz,¹⁰ M. La Cognata,² M. La Commara,⁴ M. Lattuada,^{2,3} D. Mengoni,¹¹ R. G. Pizzone,^{7,2} C. Signorini,¹¹ C. Stefanini,⁶ L. Stroe,⁹ and C. Spitaleri^{2,3}

Nuclear Inst. and Methods in Physics Research, A 877 (2018) 293–299



Contents lists available at ScienceDirect

Nuclear Inst. and Methods in Physics Research, A

Journal homepage: www.elsevier.com/locate/nima



Use of the facility EXOTIC for fusion–evaporation studies

E. Strano^{a,b,*}, G. Montagnoli^{a,b}, A.M. Stefanini^c, M. Mazzocco^{a,b}, G.L. Zhang^{c,d}, I. Zanon^{a,b}, G. Colucci^{a,b}, D. Ackermann^c, A. Boiano^h, L. Corradi^c, E. Fioretto^c, F. Galtarossa^{c,f}, M. La Commara^{g,h}, G. La Rana^{g,h}, C. Parascandolo^h, D. Pierroutsakou^h, F. Scarlassara^{a,b}, F. Soramel^{a,b}, D. Torresiⁱ



Richieste finanziarie 2019: CA, Cons, T, M (molto preliminare)

Richieste Finanziarie - EXOTIC Sez. Padova

Richieste totali Missioni: 2 k€ Interno - 1 k€ Estero

Costruzione Apparat

4 k€: Manutenzione Linea

Gas Compressi

2 k€: acquisto di gas compressi per PPAC e gas target

Manutenzione

1 k€: Manutenzione 2 Rivelatori DSSD

Totale: 10 k€

Richieste ai Servizi della Sezione INFN di Padova

Laboratorio di Elettronica: 1 mese/uomo (assistenza/manutenzione)

Officina Meccanica: 1 mese/uomo (realizzazione e messa in opera piccole componenti)

Progettazione: 1 mese/uomo (ev. progettazione piccole componenti)