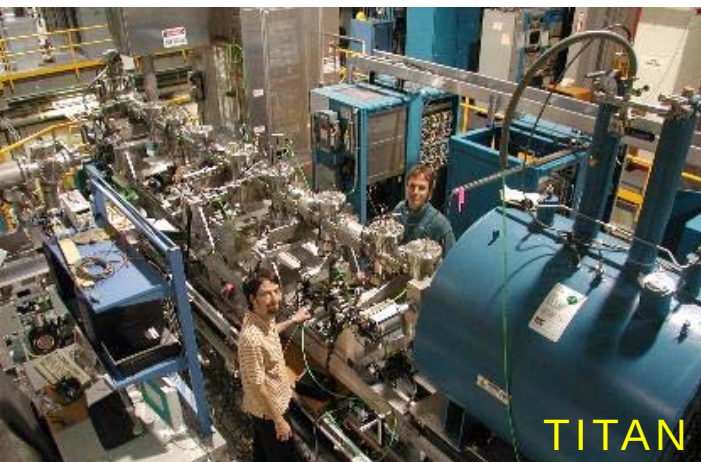
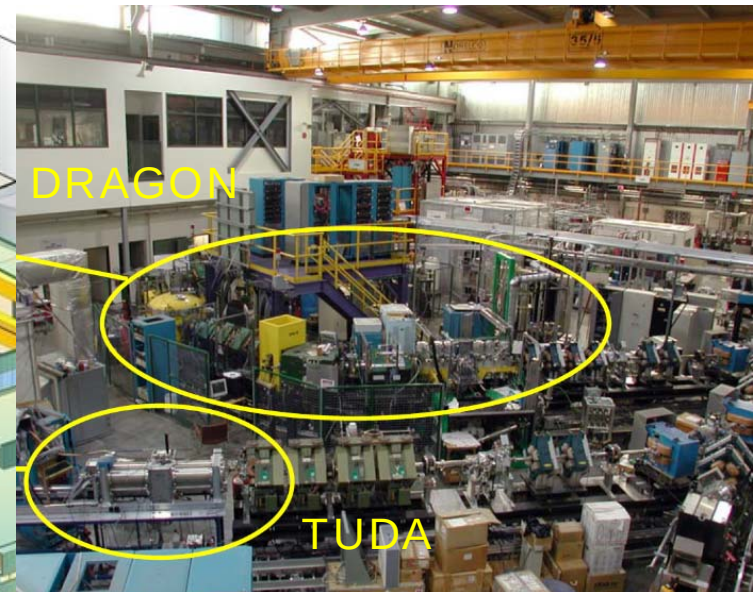
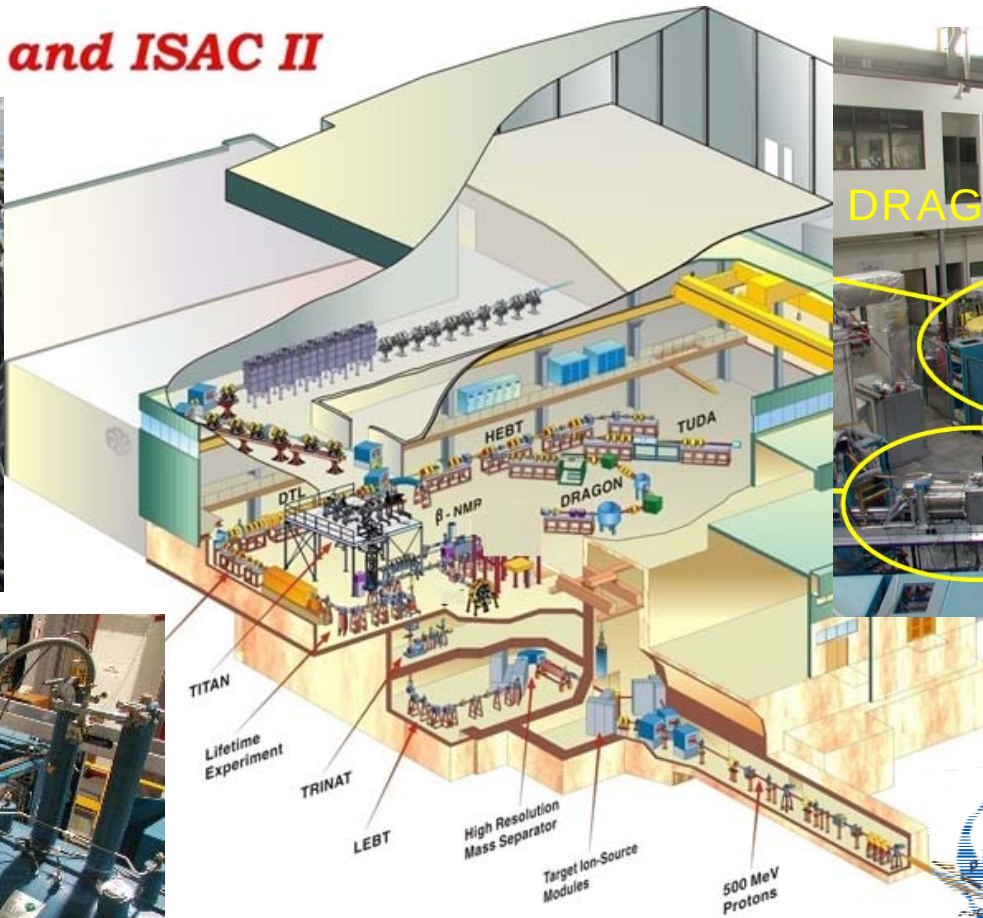




Canada's particle accelerator centre
Centre canadien d'accélération des particules

ISAC I and ISAC II



Equipes: NESTAR, NEXT, SDF
+ FIIRST



Decay spectroscopy with GRIFFIN (DESCANT/PACES)

•Spokespersons : C. M. Petrache (IJCLab), C. Andreoiu (SFU/TRIUMF)

Letter

Identifying the spin-trapped character of the ^{32}Si isomeric state

J. Williams et al.

Phys. Rev. C **108**, L051305 – Published 27 November 2023

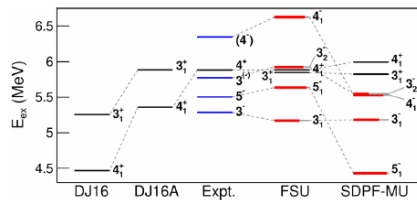


FIG. 5. Comparison of observed level energies to shell model calculations. For negative parity states, red bars indicate the calculated $v0f_{7/2}$ orbital population.

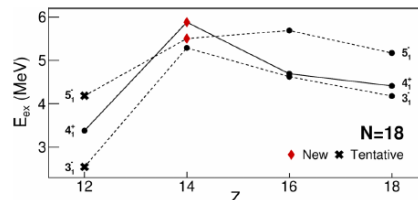


FIG. 6. Systematics of yrast states for $N = 18$ isotones in the vicinity of ^{32}Si . Data from Refs. [31–34] and this work.

Concerted program within this collaboration on ^{80}Ge , $^{116-134}\text{Sn}$, $^{135,136,137}\text{Nd}$, and ^{160}Eu from experiments with GRIFFIN, FIPPS, GALILEO, JUROGAM

PHYSICAL REVIEW C **109**, 054317 (2024)

Low-spin states in ^{118}Sn populated by the radiative capture of thermal neutrons

K. Ortner,¹ C. Andreoiu,¹ C. M. Petrache,² Chong Qi,³ A. Astier,² T. D. Bucher,⁴ G. Colombi,⁵ E. Dupont,² F. H. Garcia,^{1,*} P. E. Garrett,⁶ S. Guo,⁷ G. Häfner,⁸ B. Jigmeddorj,⁹ J. Jolie,⁸ F. Kandzia,⁵ V. Karayonchev,⁸ Y.-H. Kim,⁵ L. Knafla,⁸ B. F. Lv,^{2,7} N. Mărginean,⁹ E. McGee,⁶ C. Michelagnoli,⁵ C. Mihai,⁹ P. Mutti,⁵ C. Porzio,¹⁰ K. Raymond,¹ J.-M. Régis,⁸ N. Saeed-Samii,⁸ P. Spagnoletti,¹ W. Urban,¹¹ S. Valbuena,⁶ J. R. Vanhoy,¹² K. Whitmore,¹ J. Wisniewski,¹¹ and S. W. Yates¹³

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³Department of Physics, Royal Institute of Technology (KTH), SE-10691, Stockholm, Sweden

⁴iThemba LABS, National Research Foundation, P.O. Box 722, 7129 Somerset West, South Africa

⁵Institut Laue-Langevin, 71 Avenue des Martyrs, F-38042 Grenoble, France

⁶Department of Physics, University of Guelph, Guelph, Ontario, Canada, N1G 2W1

➤ D. Kalaydjieva et al. Acta Physica Polonica B (2023)
First report of doublet 2209 keV in ^{100}Zr

Canada's national laboratory for particle and nuclear physics
Laboratoire national canadien pour la recherche en physique nucléaire et en physique des particules

TRIUMF Home	Beam Schedules	Experiments	Beam Requests	Dashboard	Planning	Logout of Science Applications
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Experiments

Spokespersons' Portal

LSPEC Portal

LSPEC Ops Portal

MMS-EEC Portal

SAP-EEC Portal

Administrators' Portal

TRIUMF — EEC Submission
EEC meeting: 202301S
Original Proposal

Exp. No.
S2304 — Approved

Date Submitted
2022-12-14 10:42:03

Title of Experiment
Exploring the predicted shape coexistence in $^{134,136}\text{Nd}$ using the beta-decay of $^{134,136}\text{Pm}$ and GRIFFIN + PACES setup

Detailed Information
[Complete / merged PDF](#)
[Form data only](#)
[Detailed Statement](#)

Spokesperson(s) for Group
[C. Andreoiu](#), [C. Petrache](#)

S2130: Octupole collectivity ^{154}Dy (N=88)

New experiment approved: 18 days for $^{134,136}\text{Nd}$, $^{116,118,120}\text{Cd}$ and $^{140,142,144,146}\text{Ba}$, scheduled fall (?)

Demande:

12 kE missions plus 1 kE fonctionnement (Astier, Petrache + doctorant)

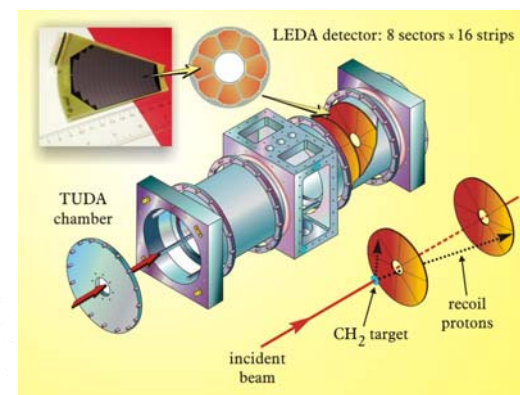
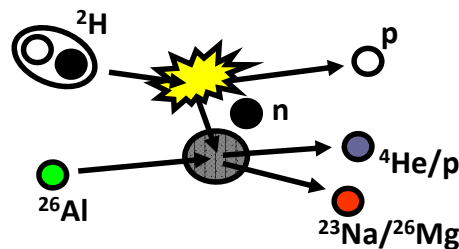
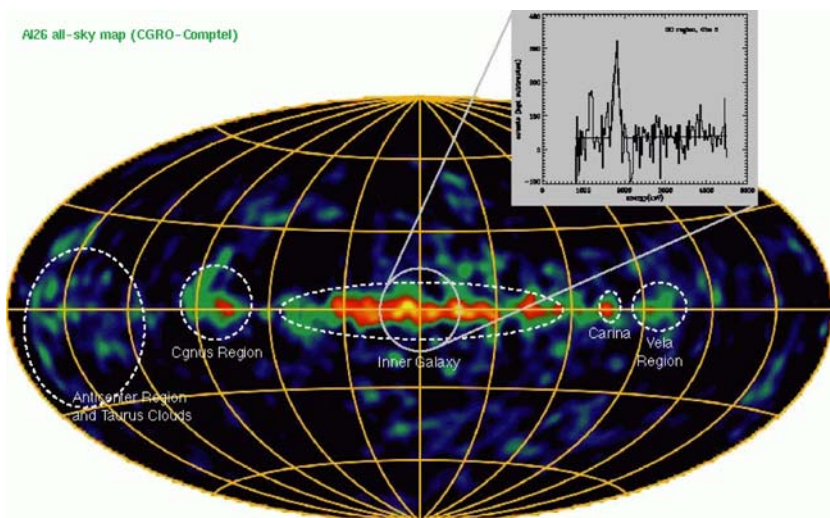
2024 request: $^{26}\text{Al}(n,p/\alpha)$ reaction via the THM @ TRIUMF

Spokespersons: M. La Cognata (LNS-Catania), D. Mengoni (INFN-Legnaro); A. Cacioli

Collaboration : LNS-Catania, INFN-Legnaro, IJCLab (F. Hammache, N. de Séréville), GANIL (F. de Oliveira), TRIUMF, York,...

STAGE: Approved
PHYSICS PRIORITY: H
SHIFTS: 24 RIB shifts (^{26}Al) on TUDA with high priority
2 SIB shifts (^4He) on TUDA with high priority

Scheduled for July 2024



Observation of 1808.65 keV γ -rays from the decay of ^{26}Al to ^{26}Mg in the interstellar medium demonstrated that ^{26}Al nucleosynthesis does occur in the **present Galaxy**. The present-day equilibrium mass of ^{26}Al was found to be $2.8 \pm 0.8 M_{\text{sun}}$.

The irregular distribution of ^{26}Al emission seen along the plane of the Galaxy provided the main argument for the idea that **massive stars** dominate the production of ^{26}Al . (Diehl et al 2006)

Budget demandé:
2 missions d'une semaine : 4000 €

^{26}Al nucleosynthesis in massive stars:
 ^{26}Al yield depends crucially on $^{26}\text{Al}(n,p)$ and $^{26}\text{Al}(n,\alpha)$ reaction rates
Rates $\times 2 \rightarrow 26 \text{ Al yield}/2$

Limongi et al., 2006 & Woosley et al., 2007, Iliadis et al. 2001

Mass spectrometry

Precision Penning trap

EBIT charge breeder

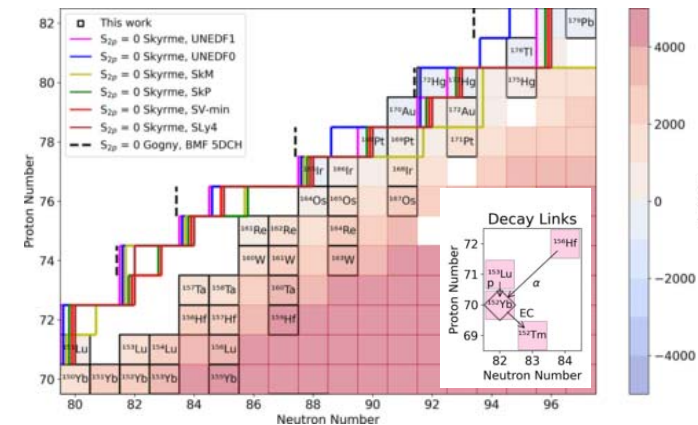
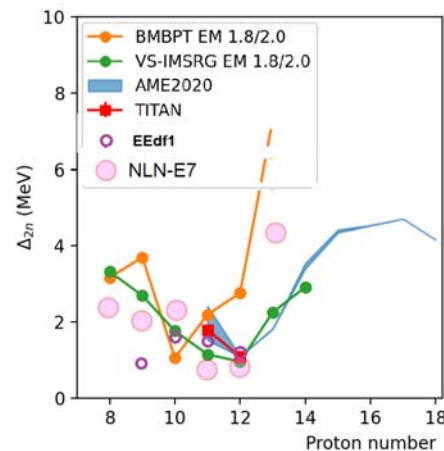
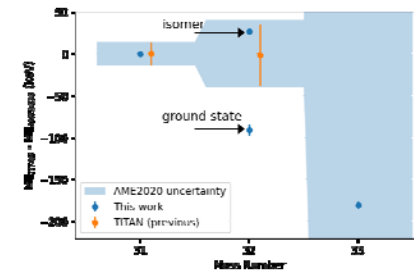
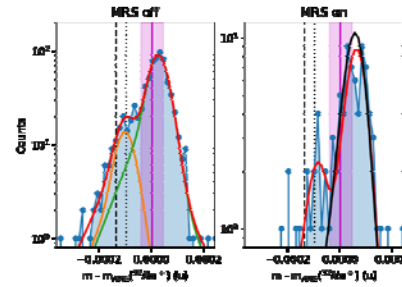
RFQ cooler and buncher

TITAN MRTOF with re-trapping achieves record sensitivity

Programme 2024:

Programme 2025:

Letter of Intent – EBIT tests with highly charged ions (S. Naimi)



Recent publications with TITAN including IJCLab

2024: PRL (submitted) new ^{32}Na isomer + refined $N = 20$ topography

2023: PRC Lykiardopoulou et al. (from AME links to $^{152-159}\text{Yb}$)

2023: NPA Jacobs et al. ($^{25-26}\text{Ne}$)

AP request TRIUMF 2025 - summary

<u>AP 2023 Demandé</u>	<u>AP 2024 Demandé</u>	<u>AP 2025 Demandé</u>
DRAGON: 0	TUDA: 4000	TUDA/DRAGON: 0
GRIFFIN: 16000	GRIFFIN: 14000	GRIFFIN: 13000
<u>TITAN: 4000</u>	<u>TITAN: 6000</u>	TITAN (MS): 4500
		<u>TITAN (EBIT): 1800</u>
Total: 20000	Total: 24000	Total: 19300