List of beams accelerated in RIB facility so far

RIB	Prod. route	T1/2	I(pps) E(keV) before RFQ	I(pps) E(MeV) after RFQ
^{14}O	$^{14}N(p, n)$	71 s	5.0×10^3 ; 10 keV	3.2×10^3 ; 1.4 MeV
^{42}K	$^{40}Ar(\alpha,pn)$	12.36 hr	2.7×10^3 ; 5 keV	-
^{43}K	$^{40}Ar(\alpha,p)$	22.3 hr	1.2×10^5 ; 8 keV	-
^{41}Ar	$^{40}Ar(\alpha,2pn)$	109 min	1.3×10^3 ; 5 keV	-
^{111}In	$^{nat}Ag(\alpha,xn)$	2.8 days	1.6×10^5 ; 5 keV	-
^{11}C (new)	$^{14}N(p, \alpha)$	20.4 min	5.0×10^3 ; 10 keV	-

Stable isotope beam	Max. Energy	Intensity (typical)
Carbon	3.5 MeV	500 nA
Nitrogen	5.8 MeV	200 nA
Oxygen	4.6 MeV	400 nA
Argon	4.0 MeV	600 nA
Ni, Ag, Zn & Iron (metals)	10 keV ; 1.6 MeV for Fe-56	150 nA ; 400 nA

First online production of radioactive ion beams at VECC

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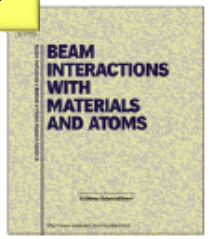


First online production of radioactive ion beams at VECC

Vaishali Naik [a,*], Alok Chakrabarti [a], Mahuwa Bhattacharjee [a], Prasanta Karmakar [a], Sampa Bhattacharjee [b], Arup Bandyopadhyay [a], Siddhartha Dechoudhury [a], Dodi Lavanya Kumar [a], Manas Mondal [a], H.K. Pandey [a], T.K. Mandi [a], D.P. Dutta [a], Tapatee Kundu Roy [a], Debasis Bhowmik [a], Dirtha Sanyal [a], Ayan Ray [a], Md. Sabir Ali [a], S.C.L. Srivastava [a], P.Y. Nabhiraj [a]

[a] *Variable Energy Cyclotron Centre (VECC), Sector-1 Block-AF, Bidhan Nagar, Kolkata 700064, India*
[b] *UGC-DAE CSR, Kolkata Centre,*

...using a novel gas-jet ECR technique

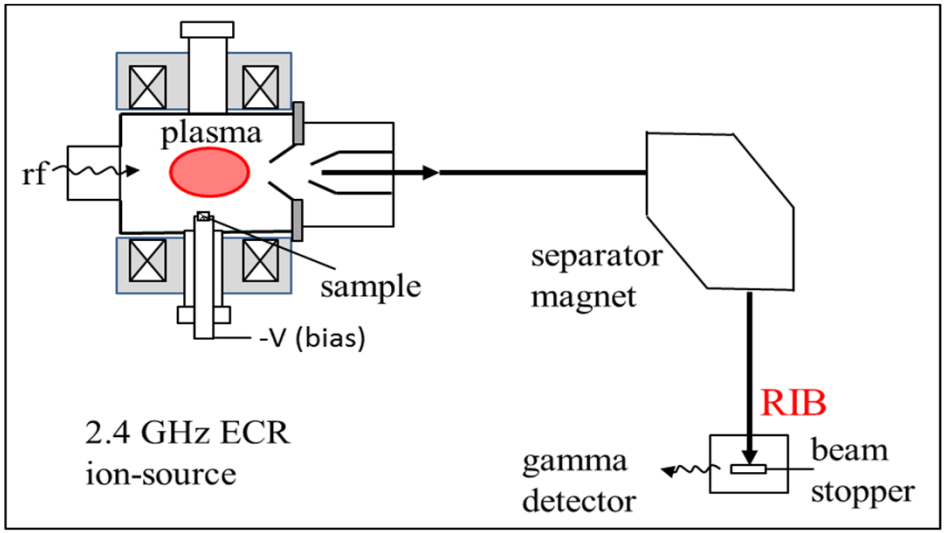
REVIEW OF SCIENTIFIC INSTRUMENTS **84**, 033301 (2013)

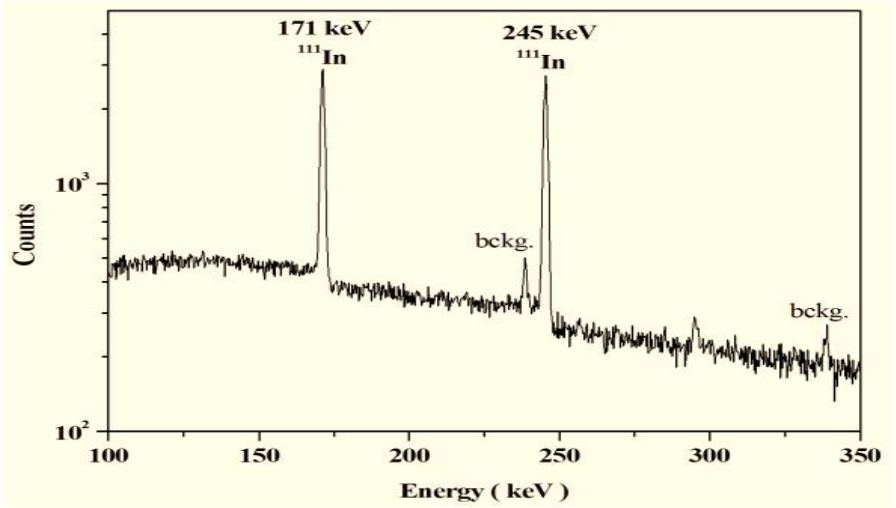
A gas-jet transport and catcher technique for on-line production of radioactive ion beams using an electron cyclotron resonance ion-source

V. Naik,[1,a)] A. Chakrabarti,[1] M. Bhattacharjee,[1] P. Karmakar,[1] A. Bandyopadhyay,[1] S. Bhattacharjee,[2] S. Dechoudhury,[1] M. Mondal,[1] H. K. Pandey,[1] D. Lavanyakumar,[1] T. K. Mandi,[1] D. P. Dutta,[1] T. Kundu Roy,[1] D. Bhowmick,[1] D. Sanyal,[1] S. C. L. Srivastava,[1] A. Ray,[1] and Md. S. Ali[1]

[1]*Variable Energy Cyclotron Centre (VECC), Sector-1, Block-AF, Bidhan Nagar, Kolkata 700064, India*
[2]*UGC-DAE CSR, Kolkata Centre, III/LB-8, Bidhan Nagar, Kolkata 700098, India*

^{111}In RIB by ion-beam sputtering for Perturbed Angular Correlation studies





Gamma-ray spectrum from decay of ^{111}In

PAC : hyperfine interaction between the probe and lattice site gives information about the surroundings. Required implanted dose ≈ 10^{9} - 10^{10} atoms

^{111}In RIB : indium produced in ^{nat}Ag(α,xn) with 30 MeV, alpha beam from K-130 cyclotron.

70 micro-curie activity inserted in ECR plasma chamber ; measured ^{111}In dose on sample ~ $1x10^{9}$

One user experiment was done (Parnika Das et.al) using this beam. In this experiment the change in beta-decay rate, which is of fundamental importance in nuclear astrophysics, is being examined for ^{111}In by implanting it in different environment such as gold and silicon matrix.