

Attività 2022

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$^{92}\text{Zr}(n, \gamma)$ and (n, tot) measurements at the GELINA and n_TOF facilities

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^{92}Zr

ROMA, 26-27 settembre 2022

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High-resolution measurements of the $^{89}\text{Y}(n, \gamma)$ and $^{89}\text{Y}(n, \text{tot})$ reactions for neutron incident energy up to 95 keV

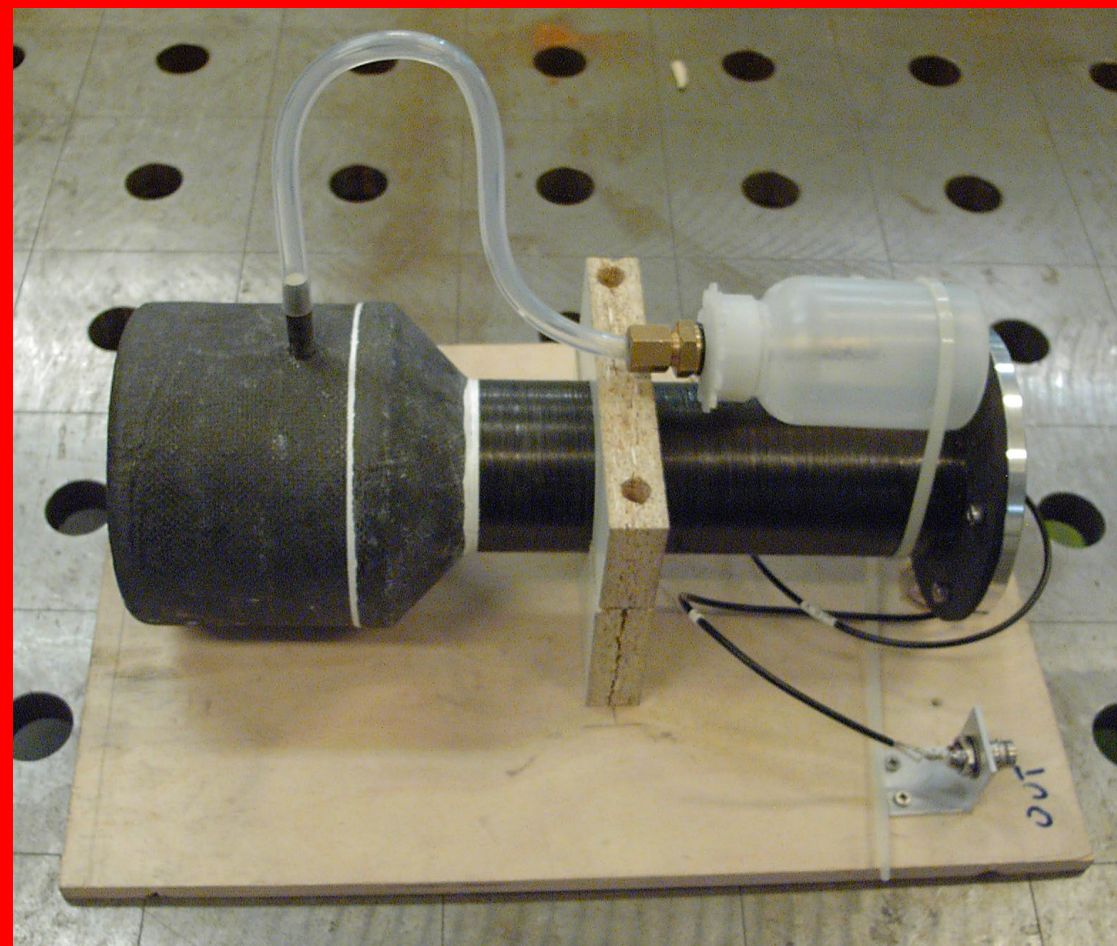
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^{89}Y

n_TOF Italia

Attività 2022

Assemblaggio nuovi L6D6



CON
LA PANCETTA



CON
IL GUANCIALE

Scegli.



2022

Gabriele CESCUTTI	50%
Francesca MATTEUCCI	25%
PMM	100%

2023

Gabriele CESCUTTI	100%
Francesca MATTEUCCI	25%
PMM	100%
Michele SPELTA	100%

FTE 1.75 → 3.25

Prospettive 2023

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Addendum of the Proposal INTC-P-208

Measurement of the neutron capture cross section of ^{64}Ni

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^{64}Ni

Prospettive 2023

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The *s* process: Nuclear physics, stellar models, and observations

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Sample	Half-life (yr)	Q value (MeV)	Comment
^{63}Ni	100.1	β^- , 0.066	TOF work in progress (Couture, 2009), sample with low enrichment
^{79}Se	2.95×10^5	β^- , 0.159	Important branching, constrains <i>s</i> -process temperature in massive stars
^{81}Kr	2.29×10^5	EC, 0.322	Part of ^{79}Se branching
^{85}Kr	10.73	β^- , 0.687	Important branching, constrains neutron density in massive stars
^{95}Zr	64.02 d	β^- , 1.125	Not feasible in near future, but important for neutron density low-mass AGB stars
^{134}Cs	2.0652	β^- , 2.059	Important branching at $A = 134, 135$, sensitive to <i>s</i> -process temperature in low-mass AGB stars, measurement not feasible in near future
^{135}Cs	2.3×10^6	β^- , 0.269	So far only activation measurement at $kT = 25$ keV by Patronis <i>et al.</i> (2004)
^{147}Nd	10.981 d	β^- , 0.896	Important branching at $A = 147/148$, constrains neutron density in low-mass AGB stars
^{147}Pm	2.6234	β^- , 0.225	Part of branching at $A = 147/148$
^{148}Pm	5.368 d	β^- , 2.464	Not feasible in the near future
^{151}Sm	90	β^- , 0.076	Existing TOF measurements, full set of MACS data available (Abbondanno <i>et al.</i> 2004a; Wisshak <i>et al.</i> 2006c)
^{154}Eu	8.593	β^- , 1.978	Complex branching at $A = 154, 155$, sensitive to temperature and neutron density
^{155}Eu	4.753	β^- , 0.246	So far only activation measurement at $kT = 25$ keV by Jaag and Käppeler (1995)
^{153}Gd	0.658	EC, 0.244	Part of branching at $A = 154, 155$
^{160}Tb	0.198	β^- , 1.833	Weak temperature-sensitive branching, very challenging experiment
^{163}Ho	4570	EC, 0.0026	Branching at $A = 163$ sensitive to mass density during <i>s</i> process, so far only activation measurement at $kT = 25$ keV by Jaag and Käppeler (1996b)
^{170}Tm	0.352	β^- , 0.968	Important branching, constrains neutron density in low-mass AGB stars
^{171}Tm	1.921	β^- , 0.098	Part of branching at $A = 170, 171$
^{179}Ta	1.82	EC, 0.115	Crucial for <i>s</i> -process contribution to ^{180}Ta , nature's rarest stable isotope
^{185}W	0.206	β^- , 0.432	Important branching, sensitive to neutron density and <i>s</i> -process temperature in low-mass AGB stars
^{204}Tl	3.78	β^- , 0.763	Determines $^{205}\text{Pb}/^{205}\text{Tl}$ clock for dating of early Solar System