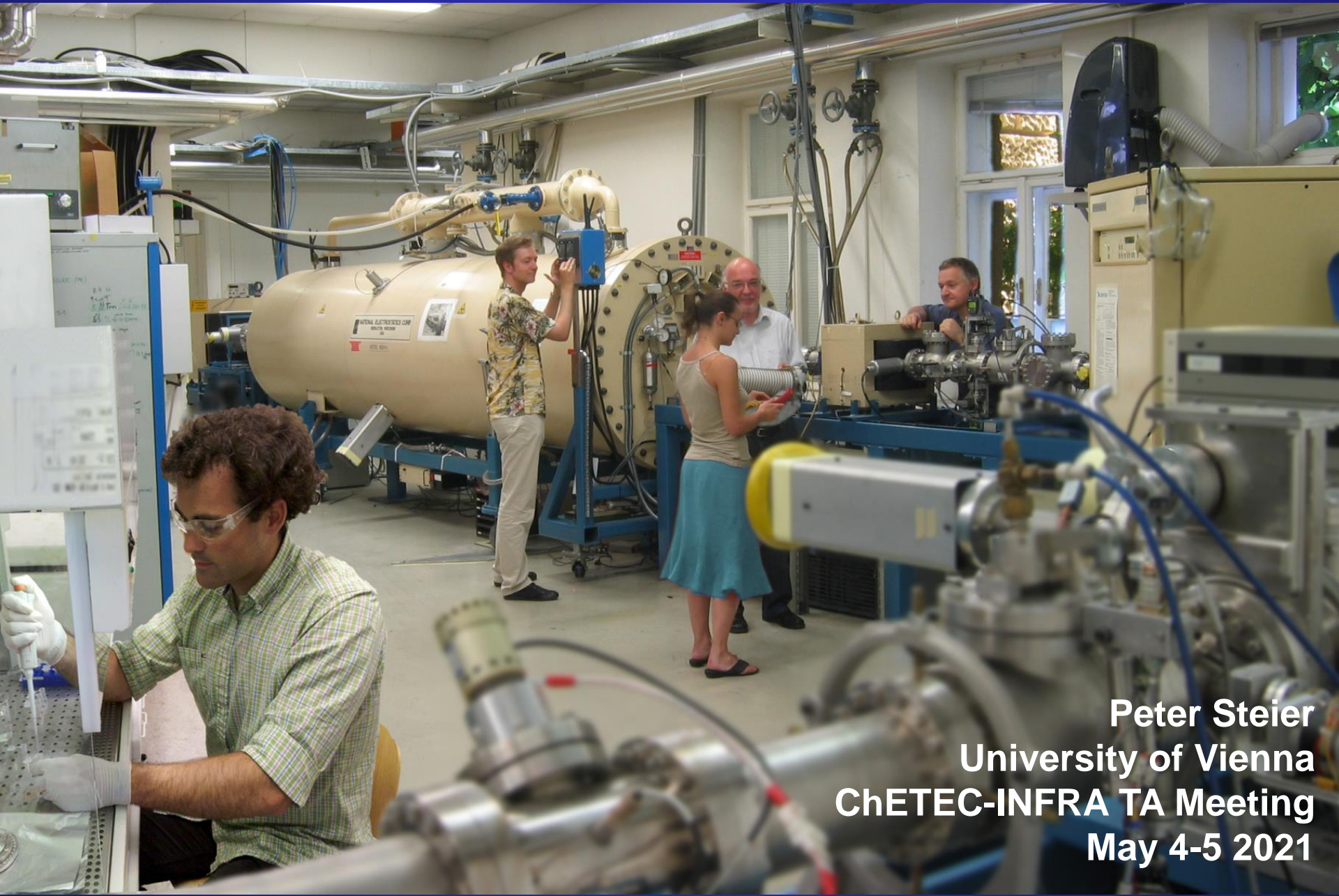


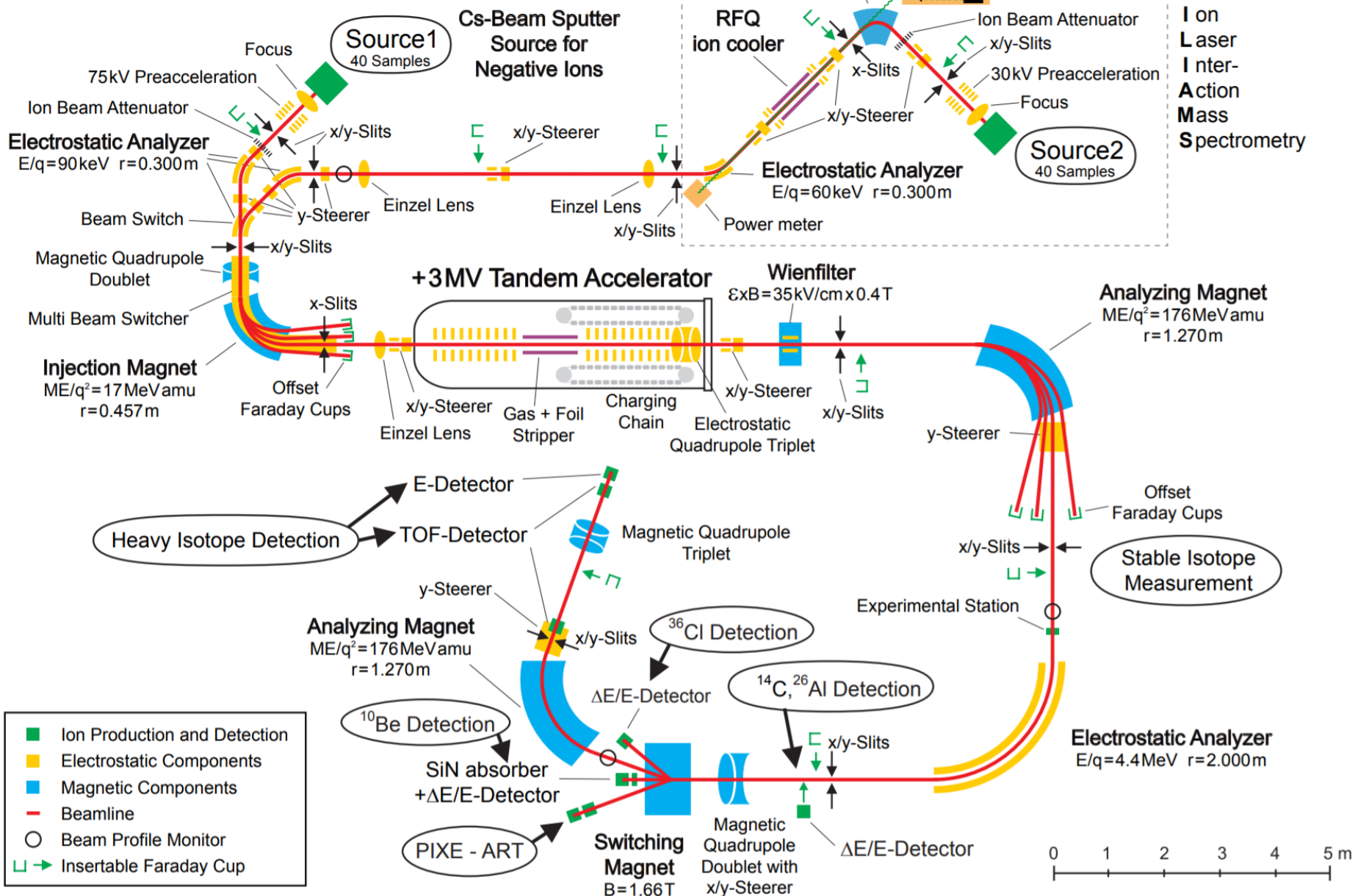
Transnational Access to the Accelerator Mass Spectrometer VERA



Peter Steier
University of Vienna
ChETEC-INFRA TA Meeting
May 4-5 2021

Vienna Environmental Research Accelerator

status 2017

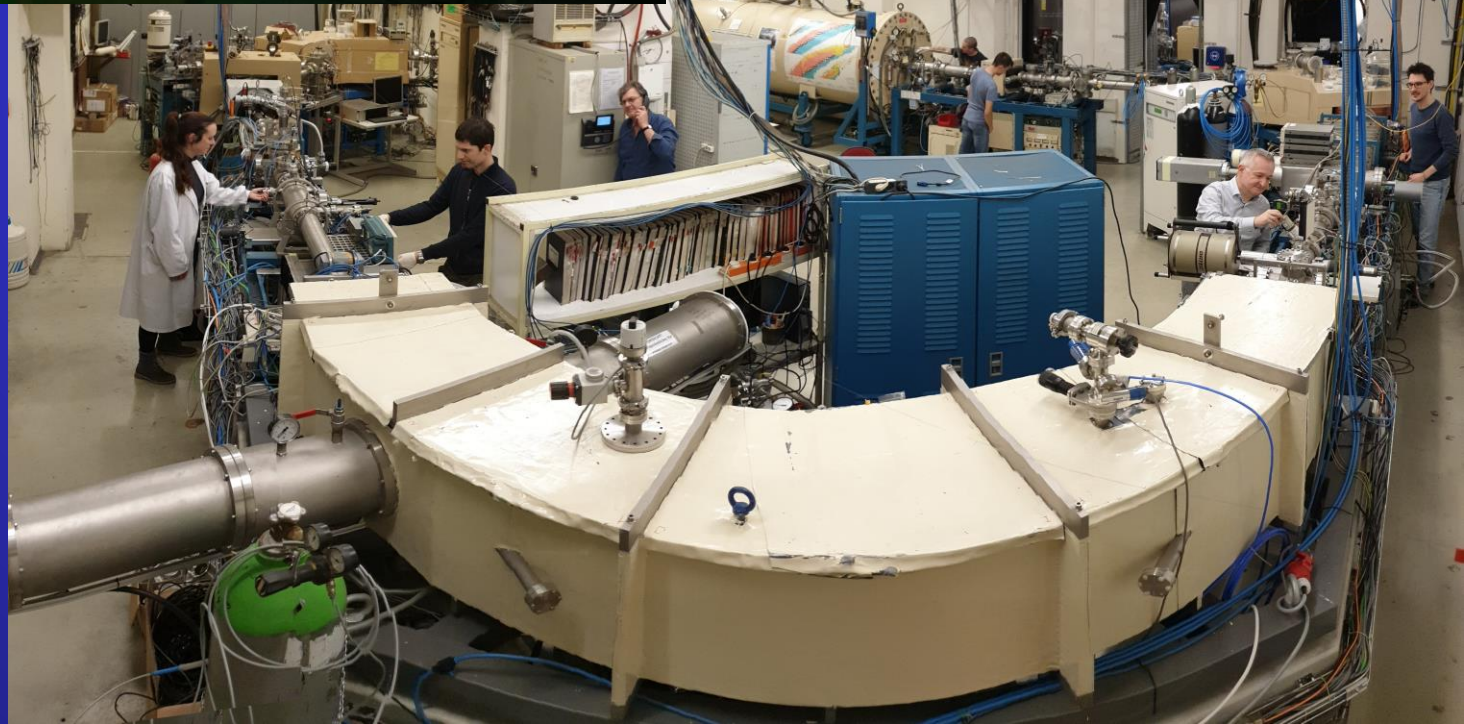


Ion-Laser Interaction (ILIAMS)

VERA Highlights

02/11/2016

Highly
selective
spectrometer

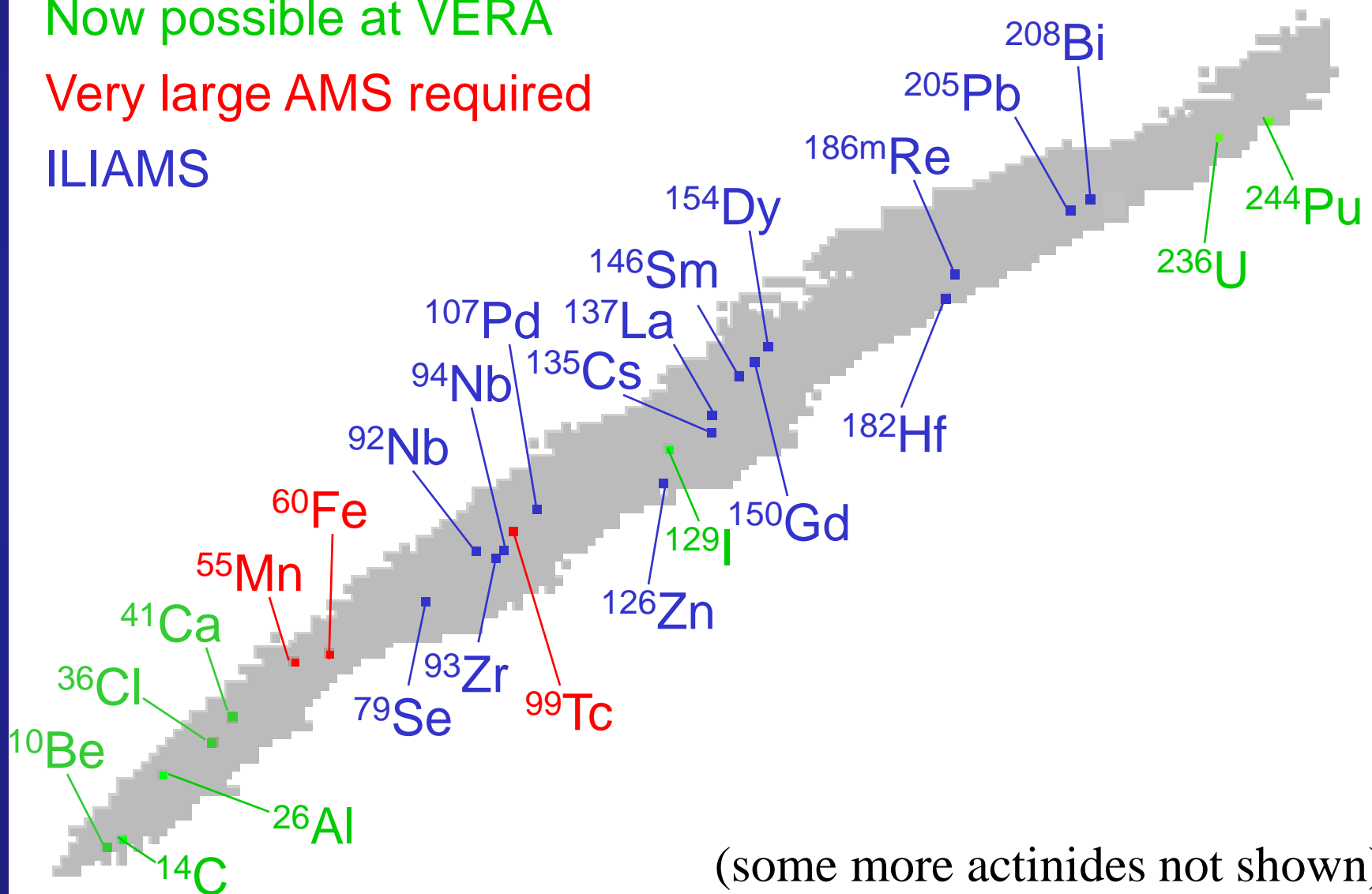


AMS Isotopes: $T_{1/2} = 10^4 \dots 10^8$ a

Now possible at VERA

Very large AMS required

ILIAMS

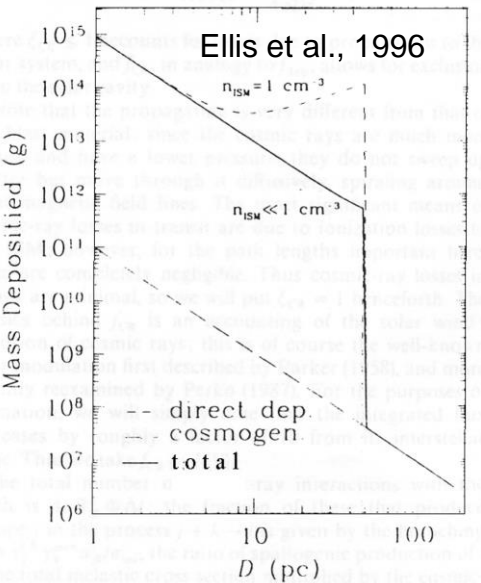


(some more actinides not shown)

Fields of astrophysical research

Radionuclides from recent super novae can reach earth

Earth hit by shock wave



<http://holographic-reality.wikidot.com/wiki:xi-scorpion>

Limits on Supernova-Associated $^{60}\text{Fe}/^{26}\text{Al}$ Nucleosynthesis Ratios from Accelerator Mass Spectrometry Measurements of Deep-Sea Sediments

Jenny Feige,^{1,2,*} Anton Wallner,³ Randolph Altmeyer,⁴ L. Keith Fifield,³ Robin Golser,² Silke Merchel,⁵ Georg Rugel,⁵ Peter Steier,² Stephen G. Tims,³ and Stephan R. Winkler^{2,6}

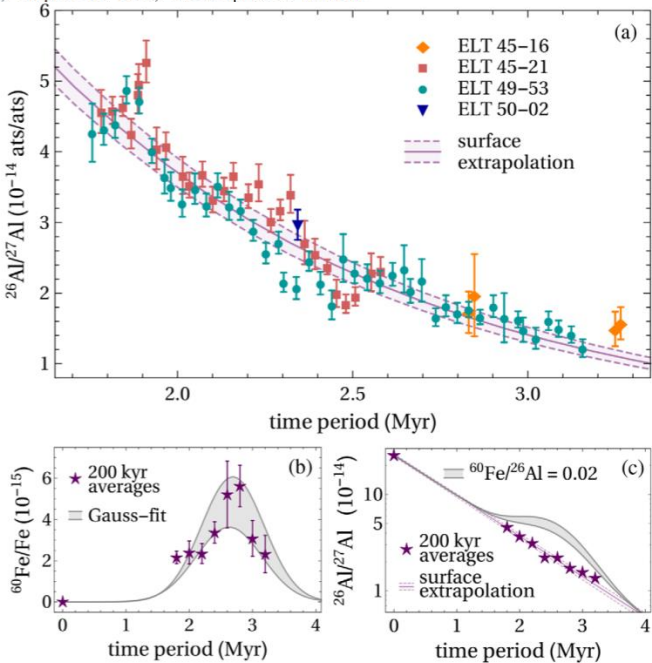


FIG. 1. (a) $^{26}\text{Al}/^{27}\text{Al}$ ratios of individual samples from four deep-sea sediment cores versus time, not corrected for radioactive decay. The exponential decay function derived from the measured initial (surface) ratio is displayed as a colored line with its uncertainty range. (b) Decay-corrected $^{60}\text{Fe}/\text{Fe}$ ratios as 200 kyr averages versus age, fitted with a Gaussian distribution and showing only the fit uncertainties. (c) $^{26}\text{Al}/^{27}\text{Al}$ ratios as 200 kyr averages versus age, not corrected for radioactive decay (logarithmic scale). The Gaussian-shaped ^{60}Fe signal has been translated to SN-associated ^{26}Al using an isotopic ratio of $^{60}\text{Fe}/^{26}\text{Al} = 0.02$.

Fields of astrophysical research

Cross sections for nuclear astrophysics

PHYSICAL REVIEW C **99**, 015804 (2019)

Stellar and thermal neutron capture cross section of ^9Be

A. Wallner,^{1,2,*} M. Bichler,³ L. Coquard,⁴ I. Dillmann,^{4,†} O. Forstner,^{2,‡} R. Golser,² M. Heil,^{4,§} F. Käppeler,⁴ W. Kutschera,² C. Lederer-Woods,⁵ M. Martschini,² A. Mengoni,⁶ S. Merchel,⁷ L. Michlmayr,² A. Priller,² P. Steier,² and M. Wiescher⁸

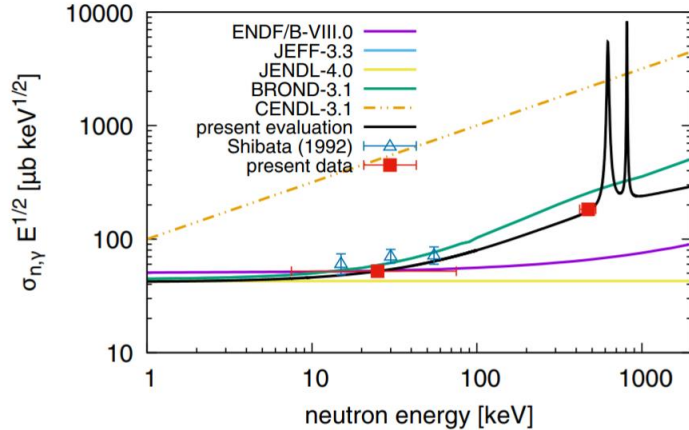


FIG. 8. Comparison of experimental data in the neutron energy range of interest for s process nucleosynthesis calculations with evaluated (n, γ) cross sections of ^9Be as given in the main data libraries. The data are plotted as reduced cross sections, i.e., the cross section is multiplied by \sqrt{E} .

PHYSICAL REVIEW C **99**, 015801 (2019)

Accelerator mass spectrometry measurement of the reaction $^{35}\text{Cl}(n, \gamma)^{36}\text{Cl}$ at keV energies

Stefan Pavetich,^{1,2,3,4,*} Anton Wallner,² Martin Martschini,¹ Shavkat Akhmadaliev,³ Iris Dillmann,^{5,6,7} Keith Fifield,² Shlomi Halfon,⁸ Tanja Heftrich,⁹ Franz Käppeler,¹⁰ Claudia Lederer-Woods,¹¹ Silke Merchel,⁴ Michael Paul,¹² René Reifarth,⁹ Georg Rugel,⁴ Peter Steier,¹ Moshe Tessler,¹³ Stephen Tims,² Mario Weigand,⁹ and Leo Weissman⁸

^{36}Cl

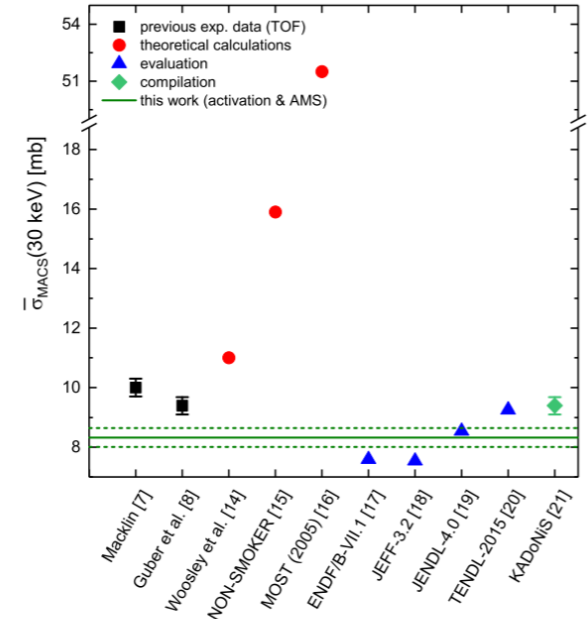


FIG. 6. MACS at $kT = 30$ keV from this work compared to previous values.

^{10}Be

Conditions for Transnational Access at VERA

Two kinds of beam times

- **development of new detection methods**
 - Usually required for new isotopes
 - Users may be present
 - Usually only day shifts, no weekend
 - Eight beamtime hours per day are charged to the project
- **Automated data acquisition**
 - Users send samples
 - Sample queue
 - flexible scheduling for efficiency and convenience
 - user deadlines are taken into account
 - Measurements during weekends and nights
 - Only actual detector counting times are charged to the project

Conditions for Transnational Access at VERA

Application for Access

- We suggest to contact us before application to ChETEC
 - Discussion of technical feasibility
 - Estimation of beam time needs based on experience
- Click-by-click instructions for the application will be posted at our Website
 - Experience from H2020 Project "RADIATE"

Clicking the link opens the following page in your Browser:

The screenshot shows the 'HZDR Proposal Management' login interface. On the left is a sidebar menu with 'GATE' and 'Proposal management' (containing 'Login', 'Registration', 'Lost password', and 'Lost username'). The main content area has a welcome message and a login form with fields for 'Username' and 'Password', and a 'Login' button. At the bottom, there is a 'Go to top of page' link and the text 'responsible: User Office'.

where you can log in with your username and password defined above.
This brings you to the proposal submission page:

The screenshot shows the 'HZDR Proposal Management - Vera Diator' page. The sidebar menu is more extensive, including 'My proposal', 'Personal section', and 'Terms and conditions'. The main content area features a blue box with an approval notice, a red box with a deadline for ELBE (March 12th, 2020), and a yellow box for 'My proposal' with a link to 'Publication list / submit publications'. There is also a 'Personal section' with links for 'Personal data' and 'Connect with Institutional Login'.