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Type: Oral

Felsenkeller 5 MV underground accelerator

Tuesday, 20 June 2017 15:50 (20 minutes)

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%
% Nuclear Physics in Astrophysics 8 template for abstract
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% PAGE LAYOUT:
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\oddsidemargin +0.35in
\evensidemargin -0.35in

%\renewcommand{\rmdefault}{ptm} % to use Times font

\long\def\TITLE#1{\Large\bf#1}\long\def\AUTHORS#1{ #1\}[3mm]
\long\def\AFFILIATION#1#2{^1 #2\}
\begin{document}
{\small \it Nuclear Physics in Astrophysics 8, NPA8: 18-23 June 2017, Catania, Italy}

\vspace{12pt}

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\begin{center}
%%
%% Title goes here.
%%
\TITLE{Felsenkeller 5\,MV underground accelerator}\[3mm]
%%
%% Authors and affiliations are next. The presenter should be
%% underlined as shown below.
%%
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%%
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\end{center}
%%
%% Abstract proper starts here.
%%
Low-background experiments with stable ion beams are an important tool for putting the model of stellar
hydrogen, helium, and carbon burning on a solid experimental foundation. The pioneering work in this
regard has been done by the LUNA collaboration at Gran Sasso, using a 0.4 MV accelerator. In the present
contribution, the status of the project for a higher-energy underground accelerator is reviewed. Results from
 $\gamma$ -ray [1], neutron, and muon background measurements in the Felsenkeller underground site in Dresden,
Germany, will be shown.

Two tunnels of the Felsenkeller site are currently being refurbished for the installation of a 5 MV high-current
Pelletron accelerator. Construction work is progressing on schedule and expected to complete in August
2017. The accelerator will provide intense, 50  $\mu$ A, beams of  $^1\text{H}^+$ ,  $^4\text{He}^+$ , and  $^{12}\text{C}^+$  ions, enabling research on
astrophysically relevant nuclear reactions with unprecedented sensitivity.

\bigskip
{\small
\noindent [1] T. Sz"ucs et al., Eur. Phys. J. A 51, 33 (2015).

\noindent
[2] http://www.hzdr.de/felsenkeller }
%%
%% End of abstract.
%%
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Session Classification: Direct measurements 2