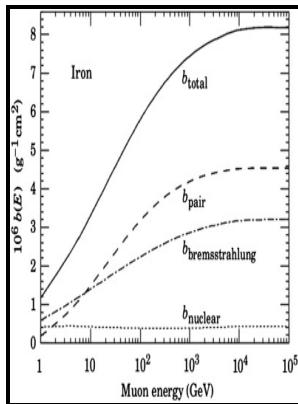


# Design and testing of a water Cherenkov muon polarimeter.

## - - Upgrading the water Cherenkov tanks for atmospheric shower identification



Description: -

-  
Scour at bridges -- Indiana -- Scott County.  
Turkey -- Foreign relations -- Romania -- Transylvania  
Transylvania (Romania) -- Foreign relations -- Turkey  
Thirty Years War, 1618-1648 -- Sources  
Rákóczi György -- I, -- Prince of Transylvania, -- 1593-1648.  
Canon (Literature)  
African literature -- Study and teaching  
Physics Theses design and testing of a water Cherenkov muon polarimeter.  
-design and testing of a water Cherenkov muon polarimeter.  
Notes: Thesis (M.Sc.), Dept. of Physics, University of Toronto  
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## Upgrading the water Cherenkov tanks for atmospheric shower identification

They have been used for a long time as surface detectors of atmospheric showers produced by cosmic rays ultra-high energy. Therefore, this multiple-bunch-length operating mode allows present synchrotron users and coherent millimeter-wave users or sub THz users to carry out their experiments simultaneously.

## Upgrading the water Cherenkov tanks for atmospheric shower identification

To go further, the composition of the UHECR flux, and also the localization of the sources not yet identified have to be better known.

## Upgrading the water Cherenkov tanks for atmospheric shower identification

Present ground based detectors, especially water Cherenkov tanks, provide some indicators, in complement to the depth of maximum directly measured by fluorescence telescopes; but these indicators rely on models of the hadronic interactions at ultra-high energy, which cannot be observed in present colliders. In this article, I shortly review the most important achievements and discuss the potential for future applications.

## Upgrading the water Cherenkov tanks for atmospheric shower identification

From S 1 and S 2 a linear system gives an estimation of  $\Phi_\mu$  and  $\Phi_{\text{em}}$  Summary and conclusion The water Cherenkov tanks are robust and can work in an autonomous way over long periods.

## Upgrading the water Cherenkov tanks for atmospheric shower identification

Since the relatively low energy characteristic of HLS-II we achieve the multiple-bunch-length operating mode without multicell superconducting RF cavities, which is technically feasible. . To answer these questions the identification of the nature of the primaries is crucial.

## **Upgrading the water Cherenkov tanks for atmospheric shower identification**

Here we describe how Cherenkov tanks may be modified or complemented to better separate the components, hence to better identify the primary cosmic ray which produced the shower. However they do not directly distinguish the different components of the showers: in particular they do not identify unambiguously the muons.

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