

## RESMM'14

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### **High Temperature Superconductors for the Superconducting Links of the Hi-Lumi-LHC Project (\*)**

#### *Abstract*

The High Luminosity LHC Project is devoted to increase the LHC Luminosity to  $5 \times 10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ . In the frame of the Hi-Lumi project the power converters of the magnets will be moved from their actual position (underground) to surface. This will reduce the effect of the radiation to the electronics, the maintenance intervention time and radiation exposure of the operators. In addition free space underground will be available. The links between surface and magnets in the tunnel will use  $\text{MgB}_2$  HTS lines, with possible insertions of other materials. Material irradiation tests are simulated with the FLUKA Monte Carlo code, and the consumption of  $^{10}\text{B}$  by neutron capture in the LHC radiation environment is evaluated. The preliminary results of the effects of the LHC debris on  $\text{MgB}_2$  in a possible layout are presented.

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This work is part of HiLumi LHC Work Package [6: Cold Powering]