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## Search for muonic dark force at Belle II

In this presentation, I will talk about the prospects to search for a muonic dark force at Belle II in events with four muons in the final state. These events could be due to a new gauge boson  $Z'$  which couples only to the second and third lepton family. A short description of the background suppression technique, based on artificial neural networks, and the fitting strategies for the extraction of our discovery potential will be given. I will also introduce the possibilities to identify possible displaced vertex signatures, in case of a long-lived  $Z'$  boson.

keywords : Dark force, neural networks, long-lived

### **arXiv number (if applicable)**

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