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## A fast simulation tool for multi-species secondary beam optics

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The secondary beam lines in the CERN North and East Experimental Areas are heavily subscribed, with the beams requested by users spanning a huge range of momenta and particle types. With the highly dynamic nature of test beam requirements, traditional optics tools do not always provide suitable feedback for rapid beam line tuning. Presented here is a tool to provide optics solutions and beam distributions for multi-species beams including those with unstable particles such as muons that stem from decays. The tool is written in Python and uses cpmad and BDSIM underneath. A demonstration is shown for the M2 beamline at CERN where the muon distribution is predicted from an initial pion beam with rapid tracking that includes tracking in yokes with particle-matter interaction.

### Footnotes

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### Paper preparation format

LaTeX

### Region represented

Europe

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