



June 8, 2020

DESY.

## Applicant for Postdoctoral Fellow at Harvard University

Dear Members of the Selection Committee,

Over the course of my PhD and DESY Fellowship, I conducted my research in order to better understand the fundamental interactions of elementary particles while developing new detector capabilities and software tools. I want to strengthen my expertise in these areas as a Postdoctoral Fellow at Harvard University.

I joined the ITk strips community to build a module loading station at DESY, in close collaboration with engineers from DESY and researchers from other institutes. After completing the project, I demonstrated that the station is ready to load over one thousand silicon strip modules for the ITk end-cap in the module loading Final Design Review at CERN in February 2020. This experience has prepared me well to play a leading role in the production of staves for the ITk barrel strips detector.

In parallel to my detector work, I searched for dark matter production by directly measuring decays of the Higgs boson to invisible particles. As analysis contact, I led this search to set the best LHC limit on invisible Higgs decays to date. With a conference note released in April 2020, and building upon a collaboration I established with theorists, I am finalizing the paper that will feature several improvements. I would like to continue searching for new physics in the lifetime frontier.

I would like to come to Harvard University to learn from the high energy physics group that has been instrumental to the success of the ATLAS experiment by leading major physics analyses and building key elements of the detector. I have a deep passion and experience in physics analysis, detector development, and data acquisition systems. I thrive in an environment where I work with people with different expertise and where I work with and guide students. I would be delighted to join Harvard to expand my experience by working on exciting new physics analyses and building the next generation silicon detector of the ATLAS experiment.

I invite you to read my contributions and plans in the attached CV and research statement. Thank you for your time and effort in considering my application.

Sincerely,

Othmane Rifki

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