



June 8, 2020

DESY.

Applicant for Postdoctoral Scholar at the University of Washington

Dear Prof. Watts, 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 Scholar at the University of Washington.

Without prior experience, I joined the ITk strips community to build a module loading station at DESY from scratch. I successfully completed the project and I demonstrated that the station is ready to test and load over one thousand silicon strip modules for the ITk end-cap in the module loading Final Design Review at CERN in February 2020. I am confident that I can do the same at Washington in software R&D for the IRIS-HEP project and the prototyping of the MATHUSLA 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 the University of Washington to learn from the high energy physics group that has been instrumental to the success of the ATLAS experiment by leading several long-lived physics analyses and developing new software technologies. 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 expand my experience by working on exciting new physics analyses and developing the next generation software tools for High Energy Physics research.

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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