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High Energy Physics Laboratory  
École Polytechnique Fédérale de Lausanne  
Lausanne, Switzerland

Dear Selection Committee,

I am writing to express my interest in the PhD student position in experimental particle physics offered by the High Energy Physics Laboratory of EPFL, as I have always been greatly interested in Fundamental Physics, and the LPHE of EPFL is among the best centers in the world to work on cutting-edge projects in Particle Physics.

I became part of the LHCb Collaboration back in 2019 thanks to ITEP, a major fundamental physics laboratory in the Soviet Union and later in Russia. My fascination with the LHCb Experiment has grown ever since joining it with every piece of information I learned about it. My knowledge of the detector software combined with a deep understanding of the underlying physics and maths allowed me to reinforce my involvement in accelerator-based particle physics research.

The years of studying at Lomonosov Moscow State University provided me with a strong base of mathematics, calculus, statistics, and a broad range of general and specialized physics fields as well as modern data processing technologies. My studying approach has proven exceptionally successful, as I shared the first place in graduate rankings with 2 other students with perfect grade records, having received only the highest grades for all exams throughout the 6 years. My deep understanding of the subjects we learned let me help all my groupmates and other students at the Faculty of Physics, with several professors thanking me personally for playing such an active role in the teaching process.

At the same time, working in the LHCb Groups at ITEP and SINP MSU introduced me to the field of experimental particle physics. When I first came to the research group, I was instantly engaged in the analysis of the  $\Lambda_b^0 \rightarrow D^{(*)+} p \pi^- \pi^-$  decays. My work with the fitting model was a great entry point and allowed me to contribute to the analysis up to its publication in JHEP. Having learned the LHCb research approaches, now I am the leading physicist in the analysis of charm baryon resonant contributions in the  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^+ \pi^- \pi^-$  decay.

My learning habits have been very fruitful in extracurricular activities as well. Programming has been a passion of mine for over 6 years, and I've gathered much software experience with multiple programming languages as well as Linux and Git. Even though my years of active study and research haven't yet allowed me to gain hardware experience, I am very eager to acquire it and enthusiastic about such opportunities. My software experience could help me get involved in hardware projects.

I believe I'd be a good fit for the position and would fulfill the requirements as I have much interest in fundamental research, great experience with data analysis and programming, and possess the skills of long-term learning as well as teaching. I'd love to be part of the PhD program at the LPHE of EPFL and make my contribution to the particle physics projects at your laboratory.

Thank you for your consideration.

Sincerely,



Abdul-Kerim Guseinov