Posudek školitele na bakalářskou práci

Student: Sára Haidlová
Title: Azimuthal asymmetries in coherent photoproduction of J/ψ with ALICE
Supervisor: Guillermo Contreras
Grade: A (výborně)

This work presents experimental results obtained in the framework of the ALICE Collaboration of a recently proposed new observable that would allow us to study the spin properties of the QCD structure of a Pb nucleus.

The main result of the analysis presented in this thesis is the first study of this new observable for the case of the coherent photproduction of the J/ψ vector meson (the observable has been studied for the case of the ρ vector meson). This is a very preliminary result, before applying several needed corrections, but nonetheless this first search of azimuthal asymmetries in this system looks very promising.

The work is structured in 5 chapters accompanied by an *Introduction* and a *Summary* sections. The first two chapters present the basic concepts of the Standard Model and of QCD, respectively, to set the stage for the studies performed in this work. Chapter 3 presents the ALICE detector with special emphasis in the subsystems used later on. Chapter 4 describes two papers with recent related measurements performed by the ALICE and the STAR collaborations, respectively. The main contribution of the work is presented in Chapter 5 where the steps of the analysis of data are described and the first preliminary result on the azimuthal asymmetries in the coherent photoproduction of J/ψ is shown.

The work performed by Sára is very solid and the preliminary results look very promising. To perform such an analysis at the bachelor level is quite an achievement which sets Sára in a prime position to perform a full analysis during her M. Sc. studies that could yield a paper for the ALICE Collaboration.

In summary, Sára Haidlová completed the requested work for her thesis, and found very interesting results that could yield in the future the basis of a research paper. For these reasons the note I assign to this Diploma Thesis is **A (výborně).**

Guillermo Contreras,
Prague, August 18, 2021