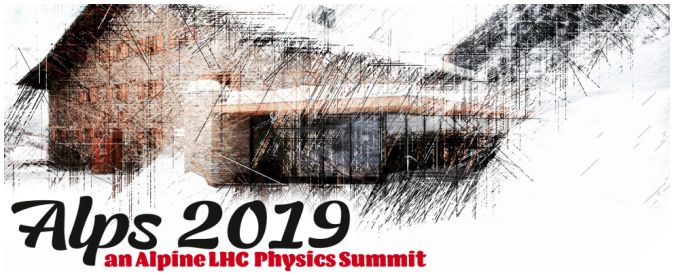

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Angular analysis of the $e^+e^- \to D^{(*)}D^*$ process near the open-charm threshold using initial-state radiation at Belle

Tuesday 23 April 2019 19:30 (10 minutes)

Until recently, parameters of vector charmonia lying above the open-charm threshold were determined from the inclusive cross section of the electron-positron annihilation to hadronic final states. However, the parameters of the resonances obtained this way are model-dependent and they suffer from large uncertainties. On the other hand, measurements of exclusive cross sections of the e^+e^- annihilation to charm hadrons should provide important missing information about strong interaction in this region so that the results of such measurements are of large interest both for developments of experimental methods, and theory.
In particular, the aforementioned measurements should shed light on the nature on the charminium states with quantum numbers 1^{--}, which are not fully understood yet. Determination of the masses and widths of these resonances in a model-independent way and extraction of their coupling constant to elastic open-charm channels will allow to obtain information on the wave functions of the vector charmonia and to verify the phenomenological models for heavy hadrons.
New results are obtained for the exclusive cross sections of the e^+e^- annihilation into charmed hadron pairs with initial state radiation. The analysis is based on the data sample collected with the Belle detector with the integrated luminosity of 951 fb^{-1}. The accuracy of the cross section measurement is increased by a factor of 2 compared with the previous Belle study and, for the first time, the $e^+e^- \to D^*D^*$ cross section is decomposed into three components corresponding to different helicities of the D^*'s in the final state.

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