Hadronization of heavy-quarks: from elementary processes to heavy-ion collisions

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The formation of hadrons is a fundamental process in nature that can be investigated at particle colliders. This seminar focuses on the investigation of hadronization processes, particularly those involving heavy quarks, in various collision systems ranging from e+e− to proton–proton (pp) and nucleus–nucleus (AA) collisions. In recent years, the paradigm that heavy-quark hadronisation should be universal and proceed similarly in e+e− and hadronic collisions was severely questioned by the observation that charm and beauty baryon production relative to that of mesons is larger in hadronic than in e+e− collisions. The seminar aims to provide insights through a combination of the most relevant and recent experimental results and theoretical modeling. Perspective for future measurements and phenomenological modeling, that will shed light on the current open question will also be discussed.