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J. J. Sakurai Prize for Theoretical Particle Physics Lecture: Some QCD aspects of physics beyond the standard model
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The nature of observable events at the LHC is mainly determined by QCD physics, i.e. strong interactions. The search for new physics obviously implies a desire to go beyond QCD. Nevertheless, also in cases where non-QCD processes are studied, new aspects of QCD physics may enter the back door. We here give three examples: decays with R-parity violation in SUSY, the formation of long-lived R-hadrons in SUSY, and parton showers and hadronization in Hidden Valley scenarios. These three possibilities have been implemented in the general-purpose PYTHIA event generator, so that detailed studies of consequences can be performed.