

Types of QCD calculation

Type of QCD calculation	Suitable for...	Examples of programs
Fixed-order QCD (N^xLO)	Inclusive cross sections dependent on one typical energy scale	FEWZ, VRAP, MCFM, Top++, MadGraph, Phox
Multi-scale factorization/Resummation (e.g., NNLL+NNLO)	Inclusive cross sections dependent on several distinct energy scales	ResBos, DyRes, DiffTop
Parton showering programs	Approximate exclusive cross sections + detector effects	LL+LO: Pythia, Sherpa, Herwig LL+NLO: PowHeg, MC@NLO Matched/merged LL: CCKW, MLM,...
Small-x factorization (BFKL, CCFM,...)	Cross sections at forward rapidities	