Cubical homotopy type theory and univalence
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In this work-in-progress talk, I will present the cubical model of homotopy type theory recently developed by Coquand et al., making a few modifications along the way. The basic category of cubes is simplified by exploiting the duality between cartesian cubes and bipointed sets. The presheaf category of cubical sets is then a classifying topos with good logical, combinatorial, and geometric properties. The Kan extension property familiar from algebraic topology is just what is required to model the identity-type rules of Martin-Löf. The univalence axiom of Voevodsky is then considered in the cubical setting, which is more constructive than the classical one of simplicial sets.