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Title: On bilinear estimates and critical uniqueness classes

for some nonlinear parabolic PEDs

Abstract: In this talk, we are concerned with bilinear estimates and uniqueness of mild solutions for a class of nonlinear parabolic equations in critical persistence spaces of Morrey type. For that, we construct general settings in which estimates for the bilinear term of the mild formulation hold true without using auxiliary norms such as Kato timeweighted ones. We first obtain necessary conditions in abstract critical spaces and after consider settings with further structure to obtain the estimates in general classes of Morrey, for conciseness. We then give examples and applications of the abstract theory, which contribute with different proofs for some known estimates, and consequently for the corresponding uniqueness property, and contain (as far as we know) a new bilinear estimate for some cases. Some ingredients of our approach are characterizations and estimates on the corresponding predual spaces.