Introduction to Crippa - De Lellis regularity results

This series of lectures gives a concise introduction to Crippa–De Lellis regularity results. This theory is concerned with quantitative estimates for ordinary differential equations with Sobolev coefficients. In the beginning we recall basic facts about the maximal operator in L^p spaces. Then we establish some quantitative properties of Sobolev functions on $\mathbb{R}^d$. In the end we prove a stability estimate for regular Lagrangian flows associated with Sobolev vector fields.