

# Partial regularity for Monge-Ampère type equations

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Monge-Ampère type equations arise in several problems from analysis and geometry, and understanding their regularity is an important question.

In particular, this kind of equations arises in the regularity theory of optimal transport maps.

In the 90's Caffarelli developed a regularity theory on  $\mathbb{R}^n$  for the classical Monge-Ampère equation, which was then extended by Ma-Trudinger-Wang and Loeper to a more general class of equations which satisfy a suitable structural condition. Unfortunately, this condition is very restrictive and it is satisfied only in very particular cases. Hence the need to develop a partial regularity theory: is it true that optimal maps are always smooth outside a "small" singular set? The aim of this talk is first to review the "classical" regularity theory for optimal maps, and then to describe some recent results about their partial regularity.