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Rough Families, Cluster Points, and Cores

We define the notion of ideal convergence for sequences (x_n) with values in topological spaces X with respect to a family $\{F_\eta : \eta \in X\}$ of subsets of X with $\eta \in F_\eta$. Each set F_η quantifies the degree of accuracy of the convergence toward η . After proving that this is really a new notion, we provide some properties of the set of limit points and characterize the latter through the ideal cluster points and the ideal core of (x_n) .

Keywords: Rough convergence, rough family, ideal convergence, ideal core, ideal cluster points.

MSC: 40A35; 54A20.