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### **Lusin's theorem and compactness criteria in spaces of measurable functions**

We consider a metric space  $(X, d, \mu)$  with a doubling measure  $\mu$ . The classical Lusin's theorem can be stated in the following quantitative form: for any measurable function  $f$  on  $X$  there exists a measurable function  $g$  and a modulus of continuity  $\eta$ , such that the following inequality holds  $|f(x) - f(y)| \leq [g(x) + g(y)]\eta(d(x, y))$ . It is possible to formulate new criteria of compactness in the spaces of all measurable functions and  $L^p$ ,  $p > 0$ , in terms of such objects as  $g$  and  $\eta$ . The lecture will be devoted to the discussion of such criteria.