

### Fc provided by friction

Recall  $F_f = \mu F_N$



1. The coefficient of friction on a dry road is 0.900. How fast can a car go around a turn if the radius of curvature is 60.0m?



Ex 2: A 3.80 kg mass is sits on a horizontal turntable with a radius of 1.95 m. Find the amount of friction required to keep the object in place if the turntable has a frequency of 0.13 Hz.

1. Draw FBD

*Where is our positive axis?*

2. Fnet statement

*For UCM we take the center of the circle as positive,  
and we change Fnet into Fc*

2. Calculate the speed at which a car can safely make a turn (radius 50.0m) in dry weather ( $\mu_s = 0.85$ ) and icy conditions ( $\mu = 0.150$ ).

3. What is the minimum coefficient of static friction needed to allow a penny to rotate on a  $33 \frac{1}{3}$  rpm record (diameter = 0.300m) when the penny is on the outer edge of the record?



4. A motorcyclist moves in a horizontal circle inside a circular drum with radius 10.0m. If the coefficient of friction is 0.60, what is the smallest speed the motorcycle can have?



