**CONVECTION**

**CHAPTER-8 ------ INTERNAL CONVECTION**

entrance fully developed

region. region

xfd

**Laminar flow region**

**boundary layers**

**um**

Um,i: internal mean velocity

On the top, we have a circular tube. The fluid approaches and enters the tube with Um,I.

A boundary layer is developed at the entrance of the tube.

After xfd is reached, a fully-developed region is observed.

ReD 2300 : For turbulent flow

ReD < 2300 : For laminar flow

These correlations give you Xfd for a certain tube diameter and flow regime.

Similar correlations also hold for thermal considerations

Before we examine h for special cases:

-Laminar or turbulent ?

-Fully developed or not?

-Constant Ts or constant qs’’ ?

**Constant surface heat flux, qs’’**

Variation of Tm with x:

 **Constant surface temperature, Ts**

Variation of Tm with x: