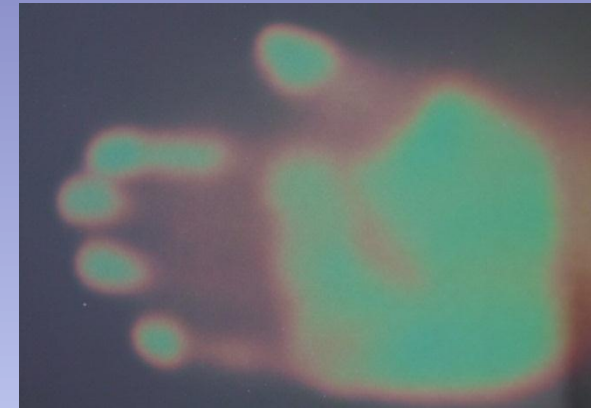


Temperature Measurement Using TLC

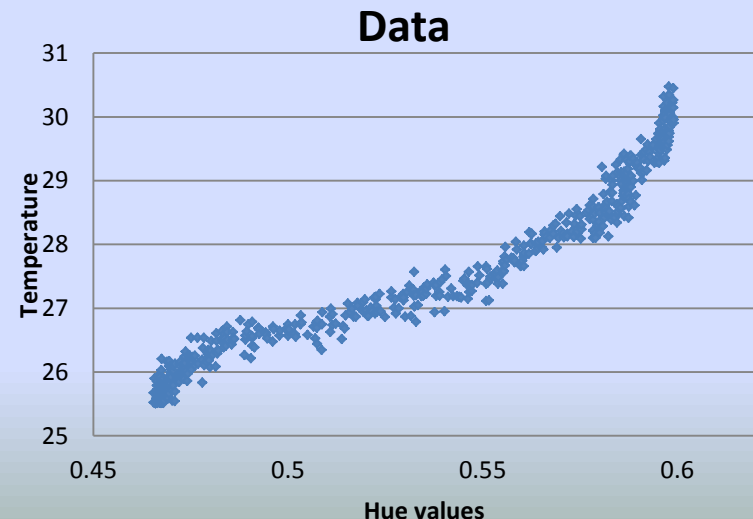


Background: TLC (Thermochromic Liquid Crystal) sheet

- Color changes at different temperatures
- Color in HSV (Hue, Saturation and Value) color space
- Temperature is found to be a function of the hue value
- Can measure temperature distribution on a surface
- Used in researches involving heat transfer

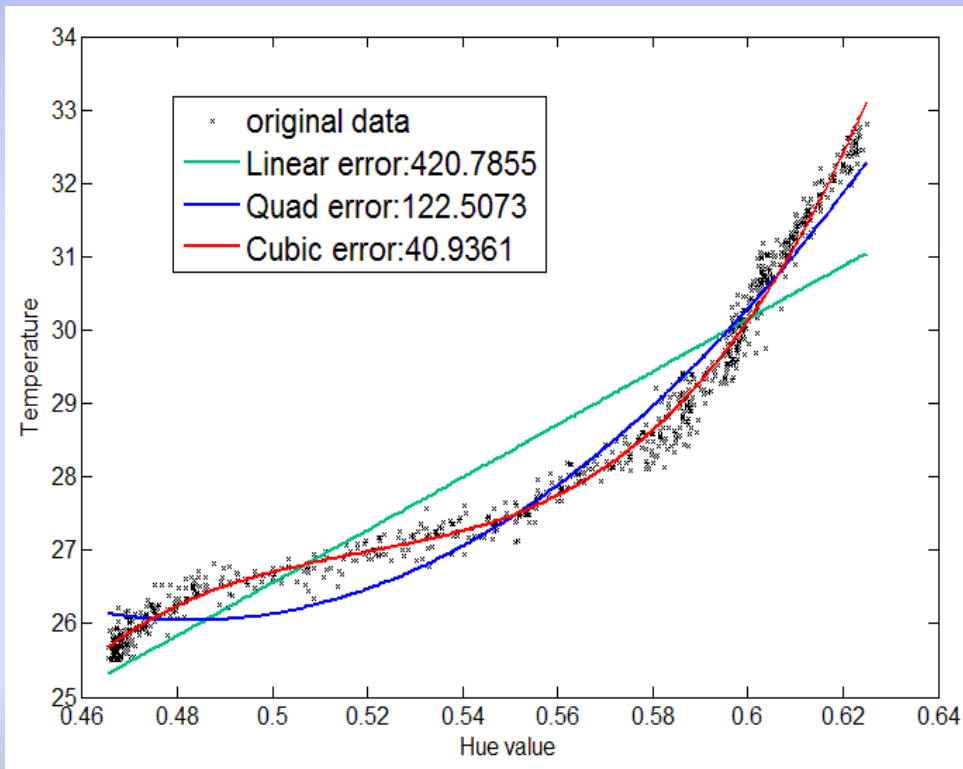
Question:

- Find least square approximations of the data and determine which method is better.
- If the hue value at certain location is found to be 0.5500, what would be the corresponding temperature?



Solution

a) The approximation curve is given as following, Cubic approximation provides a better result:



b) Cubic approximation is chosen to estimate when the hue value is 0.5500.

$$T = 27.50$$