

Disney Aniso Specular - based on Kajiya-Kay 1989

$$\text{normalize}(\vec{u}) = \frac{\vec{u}}{\sqrt{\vec{u} \cdot \vec{u}}} \quad (1)$$

Tangent vector:

$$X = \text{normalize}(0, \vec{1}, 0 \times \vec{n}) \quad (2)$$

Bitangent vector:

$$Y = \text{normalize}(\vec{n} \times X) \quad (3)$$

$$T = Y \quad (4)$$

$$L = \vec{\omega}_i \quad (5)$$

$$\text{roughness} = 0.1 \quad (6)$$

$$\text{glossiness} = (1/\text{roughness}) \quad (7)$$

$$\text{sinAngleLT} = \sqrt{1 - ((\vec{\omega}_i \cdot T) * (\vec{\omega}_i \cdot T))} \quad (8)$$

$$\text{spec} = ((\text{sinAngleLT} \cdot \sqrt{1 - ((\vec{\omega}_o \cdot T) \cdot (\vec{\omega}_o \cdot T))}) - ((\vec{\omega}_i \cdot T) \cdot (\vec{\omega}_o \cdot T)))^{\text{glossiness}} \quad (9)$$

$$f = \text{spec} \quad (10)$$