OpticalSurface< T, U >

- # vec3< T > position
- # vec3< T > normal
- + OpticalSurface(const vec3< T > &position, const vec3< T > &normal)
- + virtual ~OpticalSurface ()=default
- + const vec3< T > & getNormal () const
- + void setPosition(const vec3< T > &newPosition)
- + virtual vec3< T > getIntersection Point(const Ray< T, U > &ray) const =0
- + virtual std::pair<
 bool, vec3< T > > intersects
 (const Ray< T, U > &ray) const =0
- + virtual void generatePoints
 (std::ofstream &outFile)
 const =0

PlanarSurface< T, U >

- + PlanarSurface(const vec3< T > &position, const vec3< T > &normal)
- + virtual ~PlanarSurface ()=default
- + vec3< T > getIntersection Point(const Ray< T, U > &ray) const override
- + virtual std::pair< bool, vec3< T > > intersects (const Ray< T, U > &ray) const =0
- + virtual void generatePoints (std::ofstream &outFile) const =0

SphericalSurface< T, U >

- # T radius
- + SphericalSurface(const vec3< T > &position, const vec3< T > &normal, T radius)
- + virtual ~SphericalSurface ()=default
- + vec3< T > getIntersection Point(const Ray< T, U > &ray) const override
- + std::pair< bool, vec3 < T > > intersects(const Ray< T, U > &ray) const override
- + void generatePoints (std::ofstream &outFile) const override

PlanarCircle< T, U >

- Tradius
- + PlanarCircle(const vec3< T > &position, const vec3< T > &normal, T diameter)
- + T getRadius() const
- + std::pair< bool, vec3 < T > > intersects(const Ray< T, U > &ray) const override
- + void generatePoints (std::ofstream &outFile) const

PlanarRectangle< T, U >

- T width
- Theight
- vec3< T > widthDirection
 - vec3< T > heightDirection
- + PlanarRectangle(const vec3< T > &position, const vec3< T > &normal, T width, T height, const vec3< T > &widthDirection)
- + T getWidth() const
- + T getHeight() const
- + const vec3< T > & getHeight Direction() const
- + const vec3< T > & getWidth Direction() const
- + std::pair< bool, vec3 < T > intersects(const Ray< T, U > &ray) const override
- + void generatePoints (std::ofstream &outFile) const override