

# General Relativity Animations

## Geodesics

By Mark Egdall 6/15/ 09  
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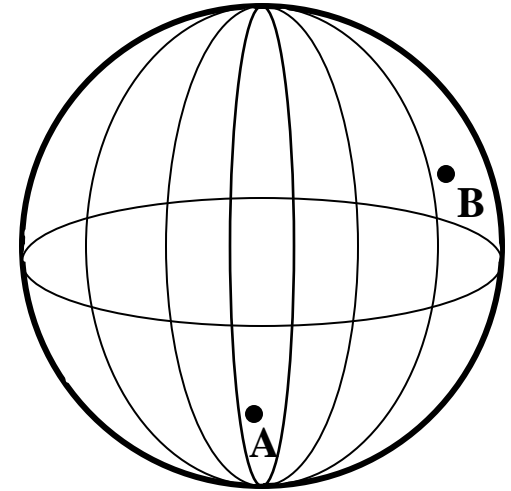
### **3. Animation on Geodesic:**

- A geodesic is the shortest path between two points on a curved surface.
- On a sphere, the geodesic is the path along a great circle.

# Geodesic – the “shortest” path on a curved surface\*

- Surface of a Sphere

- Given two points on the surface of a sphere, A and B
- What is the **shortest path** between the two points ?



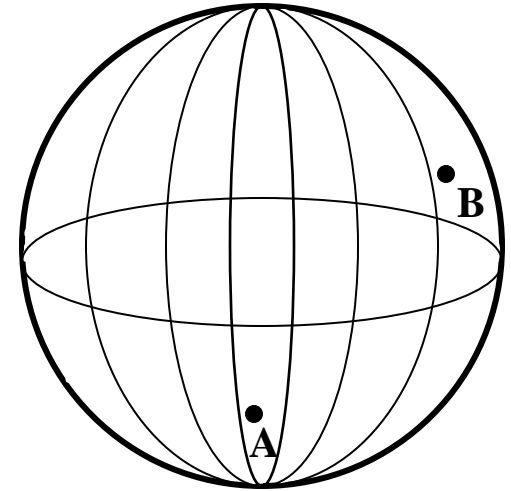
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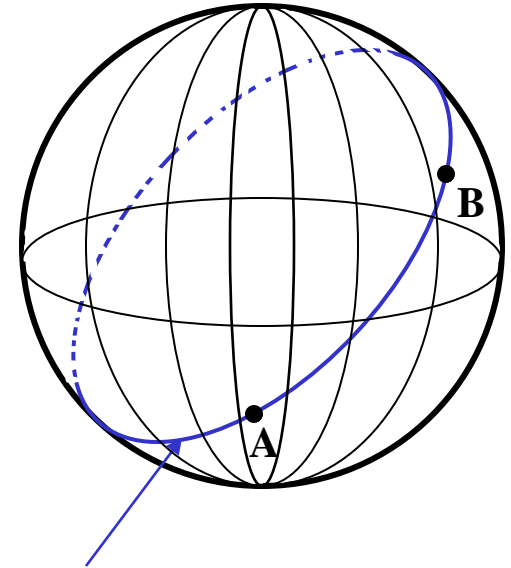
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**Example of  
Great Circle**

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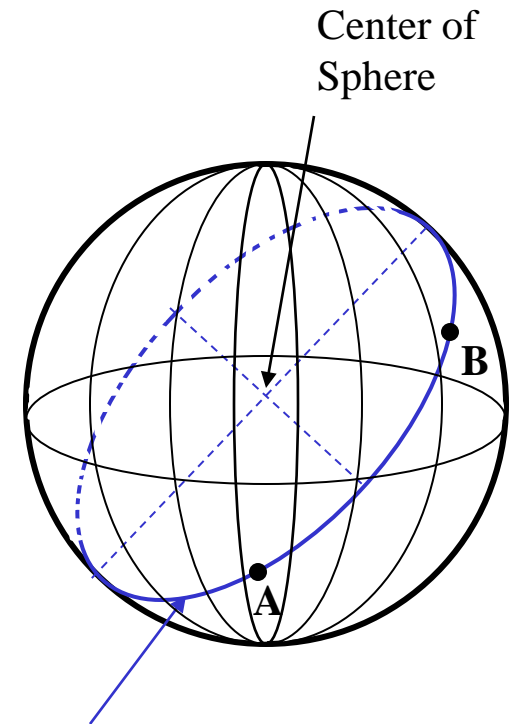
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Defined as:

The intersection of a plane through the *center* of the sphere

- A great circle divides a sphere in *two equal parts*

- It is also the longest path, if we travel in the opposite direction



**Example of Great Circle**

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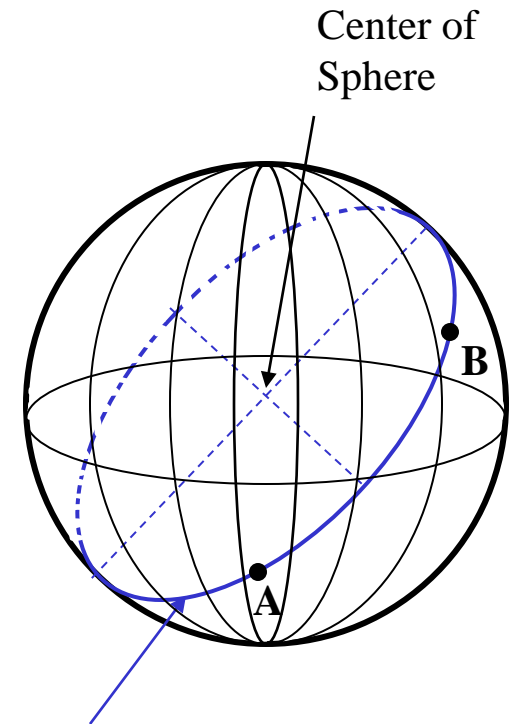
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**Example of Great Circle**

This path is called a **geodesic**

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