Abstract:

2015 was the Centennial year of Einstein’s General Theory of Relativity, and fittingly concluded with the discovery of gravitational waves, which he had predicted. Despite knowing the key physical principles, Einstein was only able to formulate his theory after learning differential geometry from mathematician Marcel Grossmann in 1912. In a sense, General Relativity simply is applied differential geometry. This talk will sketch the key ideas of differential geometry and how they apply to Einstein’s theory of gravity. The presentation will emphasize ideas and pictures, rather than equations.