

The Moon has been a major part of space exploration in human history. In ancient time, the Moon was a major character in mythologies all over the world. The first scientific endeavor for understanding the Moon was conducted by Galileo in 1609, when he built his own telescope and draw sketches of the Moon. Over the next few hundred years, the Moon was studied in more detail by ground-based observations. In 1950-60's, the US and USSR started sending spacecrafts to the Moon as the frontier of the Cold War and this space exploration significantly advanced our understanding of the Moon. In the lecture, we will briefly review the history of the lunar exploration as well as future missions. We will discuss the origin of the Moon and how cosmochemistry provides essential clues to understand the lunar history. We will also review numerical techniques commonly used in these studies. Finally, we will extend our imagination beyond the solar system and discuss exomoons.