



# Chemistry of Chandrayaan - II

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## ABSTRACT

The Vikram Lander moved sideways and hot-landed on The Moon which was unexpected. The exact reasons behind this, still remain unexplored. The possible reasons were analyzed and presented in this work. The repulsive force between the photo-induced The Moon current/magnetic field could have led to sideway travel and hot landing of Vikram Lander on The Moon.

**Keywords:** Chandrayaan - II; Vikram Lander; Magnetic material; Photoactive material.

## 1. INTRODUCTION

Chandrayaan - II was been sent by ISRO to the south pole of The Moon. Chandrayaan - I had been sent to the center part of The Moon, which landed successfully. America, China, Russia and Japan have sent the satellite to the north pole of The Moon. Chandrayaan - II was sent by ISRO to the South Pole of The Moon with a distance of 350 km. The satellite Chandrayaan - II was moving in the orbit above 300 km from the south pole of The Moon. Vikram Lander was released from Chandrayaan - II, and it was moving towards The Moon up to 297.9 km successfully. Then the movement was not under the control of ISRO. It moved sideways up to 500 meters and hot-landed on The Moon, which was unexpected. The exact reasons behind this, still remain unexplored.

### The Chemistry between Vikram Lander and The Moon

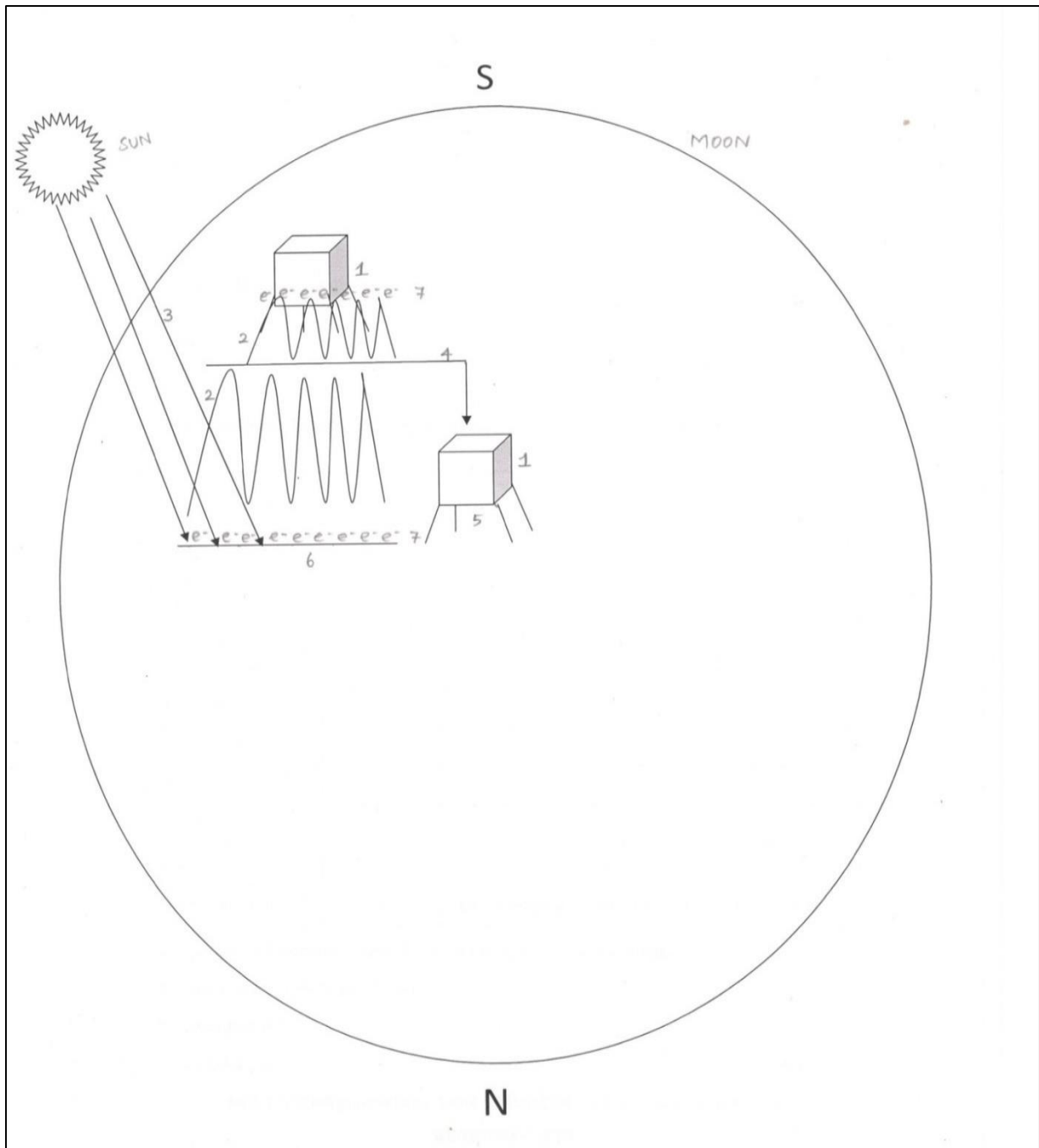
The gravitational force of the Earth/Moon depends on the chemical elements present on the planet. The gravitational force is almost spread over the earth uniformly except the equatorial line; uneven distribution of various elements/chemical components are present in the earth. It may be due to the presence of water at the ground level and underground level. The water integrates the gravitational force in the earth.

The gravity of The Moon is a kind of electromagnetic attraction. The electromagnetic

attraction differs with respect to elements present in the particular area. The overall electromagnetic attraction may not happen in The Moon because of the absence/very less quantity of water in The Moon.

The Vikram Lander landing is supposed to be smooth as per ISRO technology. The electromagnetic radiation might have induced electrons on and inside of the metal/alloys/materials used for making Vikram Lander, owing to which there could have been a repulsive force of operation, resulting in the side-way movement of Vikram Lander to a distance based on the element deposited in The Moon. This indicates that the path already predicted for the landing of Vikram Lander towards The Moon was directly influenced by the elements which create electromagnetic radiation.

On the other hand, in day time of The Moon, sunlight falls on The Moon. The predicted place of landing on The Moon may have a huge deposition of photoactive elements like Indium, Gallium,  $\text{TiO}_2$ ,  $\text{FeO}$ , etc. There is a possibility to generate a sunlight-induced strong current on the surface of the landing area (Fig. 1). Once the Lander reached the current field, there might be an automatically induction of negative charges on it and ultimately repulsion would have taken place. The sensor functions were also cutoff. The 500 m-sideway travel indicates that the photoactive elements deposition coverage extended up to 500 m. Thus, the failure of Vikram Lander revealed the presence of magnetic or photoactive material in the south pole of The Moon.



**Fig. 1: Chemistry between Vikram Lander and The Moon**

1. Magnetic field
2. Sun rays
3. Side-way movement
4. Landing on The Moon
5. The Moon's surface
6. Photoinduced electrons on the surface

## 2. CONCLUSION

Magnetic or photoactive materials might have created an electromagnetic field, disrupting the sensor function. Then the repulsive force between the photo-induced The Moon current/magnetic field could have led to sideways travel and hot landing of Vikram Lander. The sideways travel distance indicates the coverage area of magnetic/photoactive materials deposition on The Moon. This assumption might be helpful for the ISRO scientists to analyze the real scientific factors behind the deviant landing of Vikram Lander on The Moon.

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## CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

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