

My name is Gabriela Motta, and I am a M.S. student at the University of Las Vegas, Nevada under the supervision of Dr. Arya Udry. My research currently focuses on understanding the formation, evolution, chemistry, and geologic history of Mars by studying martian meteorites with various analytical techniques such as electron microprobe analyses and scanning electron microscopy. I am currently working on a unique 4.5 billion year old martian meteorite called Northwest Africa (NWA) 7034. This rock contains the oldest dated material from Mars, thus its study has provided us the opportunity to understand some of the earliest magmatic and volcanic processes that formed the red planet. Our project is the first to investigate melt inclusions (trapped pockets of magma) hosted within the minerals of NWA 7034, and through chemical analyses and modeling, will potentially allow us to better understand some of the oldest magmatic compositions in the martian interior shortly after planetary formation.

For this coming year, I propose to conduct chemical analyses on melt inclusions in NWA 7034 to link these compositions to other lithologies in the sample, constrain a potential relationship to other martian meteorites in the current collection, and understand early martian magma compositions. I hope to not only share our results at upcoming research conferences, but also ultimately write a manuscript to submit to a scientific peer-reviewed journal by the end of my M.S. degree. I also aim to acquire my Ph.D. in order to oversee and conduct novel research projects in the field of planetary science and geology, as I aspire to become a research scientist. I am excited to use the skills I have acquired during my graduate career to propose new research projects, answer scientific questions, and help understand our place in the solar system.