Georgiana Y. Kramer, Ph.D.

Planetary Geologist

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EDUCATION

Ph.D., Planetary Geology **University of Notre Dame** **Notre Dame, IN** **2·2007**
Thesis dissertation: *On the Petrogenesis and Distribution of the High-Alumina Mare Basalts: An Integrated Approach Using Geochemical and Remote Sensing Data*

B.S., Geology & Geophysics **University of Hawaii** **Honolulu, HI** **12·2000**
Space Grant Fellowship thesis: *Analysis of the Aureole Material Using Mars Global Surveyor Data*

EMPLOYMENT

Senior Staff Scientist	Planetary Science Institute	Tucson, AZ	7·2018 --
Affiliate Faculty	University of Alaska Fairbanks	Fairbanks, AK	6·2017 - 5·2020
Staff Scientist	Lunar & Planetary Institute	Houston, TX	1·2017 - 6·2018
Research Scientist	Lunar & Planetary Institute	Houston, TX	9·2012 - 1·2017
Postdoctoral Fellow	Lunar & Planetary Institute	Houston, TX	9·2010 - 9·2012
Research Associate	Bear Fight Center	Winthrop, WA	2·2007 - 9·2010

SUMMARY OF PROFESSIONAL EXPERIENCE

Planetary Geology: Knowledge of the literature, advanced principles, and technologies in planetary and space sciences. Experience in laboratory and remote sensing analysis of the Moon, Vesta, Mercury, Mars, and asteroids (including meteorites); specialized expertise of the Moon. Expertise in principles and analytical techniques of spectroscopy, geochemistry, and petrology. Participation in multiple planetary exploration missions. Ongoing collaboration with multiple commercial companies developing instruments and platforms for space exploration.

Active scientific research: Independent and collaborative research of planetary surface compositions using geomorphological and spectroscopic techniques, interpretation of sub-crustal processes, and evolution of crusts through plasma-surface interactions. Conception and communication of pioneering research in planetary science. Collaboration and consultation across a broad range of disciplines in the physical sciences.

Scientific writing and communication: Oral and written presentation of research at scientific meetings, conferences, and technical symposia to individuals and audience of peers. Able to communicate technical instructions, requirements, recommendations and accomplishments, orally and in writing, to scientific peers, subordinates, management and the general public.

Contributions to scientific community and public outreach: Experienced reviewer of technical papers, journal articles, and research proposals as part of the scientific peer-review process. Active participation on scientific and educational advisory boards. Enthusiastic participation and organization of educational presentations, exercises, and events for students of all ages, including educators and the general public.

Leadership & Organization: Independent and collaborative organization of events and working groups, for both public and professional communities. Led several teams in writing and editing weekly news stories, scientific reports, professional papers, and research proposals. Led the Lunar Capabilities Roadmap Special Action Team. Lead scientist for multiple ongoing research programs.

SELECTED PUBLICATIONS

Chandnani M., Herrick, R. R., and **Kramer, G. Y.** (2019) Geologic Investigation of Deep Simple Craters in the Lunar Simple-to-Complex Transition. *J. Geophys. Res. 124,* 2482-2504, doi:10.1029/2018JE005903.

Chandnani M., Herrick, R. R., and **Kramer, G. Y.** (2019) Geologic Analyses of Causes for Morphological Variations in Lunar Craters within the Simple-Complex Transition. *J. Geophys. Res. 124,* 1238-1265.

Corley, L. M., McGovern, P. J., **Kramer, G. Y.**, et al. (2018) Olivine-bearing lithologies on the Moon: Constraints on origins and transport mechanisms from M^3 spectroscopy, radiative transfer modeling, and GRAIL crustal thickness, *Icarus 300*, 287-304 doi:10.1016/j.icarus.2017.09.012.

Kring, D. A., **Kramer, G. Y.**, Collins, G. S., Potter, R. W. K. and Chandnani, M. (2016) Peak-Ring Structure and Kinematics from a Multi-disciplinary Study of the Schrödinger Impact Basin. *Nat. Comm.* 7:13161.

Bamford, R. A., Alves, E. P., Cruz, F., Kellett, B. J., Fonseca, R. A., Silva, L.O, Trines, R. M. G. M., Halekas, J. S., **Kramer, G. Y.,** Harnett, E., R. Cairns, A., Bingham, R. (2016) 3D PIC Simulations of Collisionless Shock at Lunar Magnetic Anomalies and Their Role in Forming Lunar Swirls. *Astrophys. J.* 830:146.

Kramer, G. Y., B. Jaiswal, B. R. Hawke, T. Öhman, T. A. Giguere, and K. Johnson (2015), The basalts of Mare Frigoris, *J. Geophys. Res. Planets 120*, 1646-1670, doi:10.1002/2014JE004753.

Sonzogni, Y., **Kramer, G. Y.**, Treiman, A. H. (2015) Petrology and provenance of a very-low-titanium picrite clast in lunar highland regolith breccia 15295. *Met. & Planet. Sci.*, 1-25, doi: 10.1111/maps.12579.

Harnett, E., **Kramer, G. Y**, Udovicic, C., Bamford, R. (2016) Simulations of Particle Impact at Lunar Magnetic Anomalies and Comparison with Spectral Observations. *arXiv:1605.05778 [astro-ph.EP].*

Bamford, R. A., Alves, E. P., Cruz, F., Kellett, B. J., Fonseca, R. A., Silva, L.O, Trines, R. M. G. M., Halekas, J. S., **Kramer, G. Y.**, Harnett, E., R. Cairns, A., Bingham, R. (2015) Formation of Lunar Swirls. Earth and Planetary Astrophysics, *arXiv:1505.06304 [astro-ph.EP]*.

Kramer, G. Y., Kring, D. A., Nahm, A. L., & Pieters, C. M. (2013) Spectral and Photogeologic mapping of Schrödinger Basin and Implications for Post-South Pole-Aitken Impact Deep Subsurface Stratigraphy. *Icarus 223*, 131-148

Kramer, G. Y. et al. (2011) M^3 spectral analysis of lunar swirls and the link between optical maturation and surface hydroxyl formation at magnetic anomalies, *J. Geophys. Res. 116*,

Kramer, G. Y., et al. (2011) Newer Views of the Moon: Comparing Spectra from Clementine and the Moon Mineralogy Mapper, *J. Geophys. Res. 116,* doi:10.1029/2010JE003728

Kramer, G. Y., Combe J.-P., Harnett E., Hawke B. R., Blewett D., Noble S., Giguere T. A., McCord, T. B. (2011) Characterization of Lunar Swirls at Mare Ingenii: A Model for Space Weathering at Magnetic Anomalies. *J. Geophys. Res. 116*, E04008, doi:10.1029/2010JE003669

McCord, T. B., Taylor, L., Combe, J.-P., **Kramer, G.,** Pieters, C., Sunshine, J., Clark, R. (2011) Sources and physical processes responsible for OH/H2O in the lunar soil discovered by the Moon Mineralogy Mapper (M^3) *J. Geophys. Res. 116*, E00G05, doi:10.1029/2010JE003711.

Kramer, G. Y. (2010) Characterizing bedrock lithologies using Small Crater Rims and Ejecta Probing (SCREP), *Adv. Space Res. 45*, doi:10.1016/j.asr.2009.12.006

C. M. Pieters et al. (2009) Character and Spatial Distribution of Possible OH/H_2O on the Surface of the Moon seen by M^3 on Chandrayaan-1, *Science 326*, doi:10.1126/science.1178658

Kramer, G. Y., Jolliff, B. L. & Neal, C. R. (2008) Searching for high alumina mare basalts using Clementine UVVIS and Lunar Prospector GRS data: Mare Fecunditatis and Mare Imbrium. *Icarus 198,* 7-18.

Kramer, G. Y., Jolliff, B. L. & Neal, C. R. (2008) Distinguishing high-alumina mare basalts using Clementine UVVIS and Lunar Prospector GRS data: Mare Moscoviense & Mare Nectaris. *J. Geophys. Res. 113*, E01002.

Neal, C. R. & **Kramer, G. Y.** (2006) The Petrogenesis of the Apollo 14 High-Al Mare Basalts. *American Mineralogist 91*, 1521-1535.