CHENG YE

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Department of Astronomy and Planetary Science
Northern Arizona University, Flagstaff, AZ 86011.

EDUCATION:

Ph.D. in Geosciences 2020
Stony Brook University, New York, USA

M.S. in Geosciences 2014
China University of Geosciences, Wuhan, China

B.S. in Geosciences 2011
China University of Geosciences, Wuhan, China

RESEARCH EXPERIENCE:

Postdoctoral Scholar: Northern Arizona University 2021-present
- Remote sensing and theoretical modeling of thermal infrared spectroscopy

Postdoctoral Research Associate: *Stony Brook University* 2020-2021
- Quantifying water content of chloride-bearing deposits on Mars

Research Assistant: *Stony Brook University* 2016-2020
- Laboratory spectroscopy of chloride salt-bearing assemblages applied to chloride-bearing deposits on Mars.
- Visible to near-infrared and mid-infrared optical constants of rock-forming minerals.
- Light scattering and radiative transfer modeling of planetary regolith.

Teaching Assistant: *Stony Brook University* 2015-2016
- GEO 104: Ripples Around the World: Global Effects of Natural Disasters

Research Assistant: *China University of Geosciences (Wuhan)* 2011-2014
- Geological characterization of Chang'e-3 landing site.
- Impact crater auto-detecting.

FIELD EXPERIENCE:

- Palisades Sill, New Jersey, USA 2019
  Incorporation of portable field instrumentation into planetary geological exploration
- Hengqin Island, Guangzhou Provence, China 2012
  Geothermal survey

- Hexigten Banner, Inner Mongolia, China 2011
  Geothermal survey
- Kumtag Desert and Ai Ding Playa Lake, Xinjiang, China 2010
  Investigation of minerals and microbial communities in hot and dry environments
- Zhoukoudian, Beijing, China 2009
  Geological mapping
- Beidaihe, Hebei, China 2008
  Investigation of geological processes and products of wind, river, ocean, groundwater, volcanism and tectonism

PUBLICATIONS:

Ye, C., Legett IV, C., Ito, G., Zastrow, A., and Gloth, T. D. (2021). Hybrid T-matrix/Hapke model applied to transparent mineral-bearing media: Implications for spectra of chloride-bearing deposits on Mars, *manuscript in preparation*.

Rucks, M. J., **Ye, C.**, Sklute, E. C., Arnold, J. A., and Glotch, T. D. (2021). Visible to mid-infrared optical constants of orthopyroxenes, *manuscript in preparation*.

Ye, C., Sklute, E. C., and Glotch, T. D. (2021). Orientation averaged visible/near-infrared and mid-infrared optical constants of hydrous Ca-sulfates: Gypsum and bassanite, *in review*.

Ye, C., Rucks, M. J., Arnold, J. A., and Glotch, T. D. (2019). Mid-infrared optical constants of labradorite, a triclinic plagioclase mineral, *Earth and Space Science*, 6 2410-2422. https://doi.org/10.1029/2019EA000915.

Ye, C., and Glotch, T. D. (2019). Spectral properties of chloride salt-bearing assemblages: Implications for detection limits of minor phases in chloride-bearing deposits on Mars. *Journal of Geophysical Research: Planets*, 124, 209-222. http://doi.org/10.1029/2018JE005859.

SELECTED ABSTRACTS:

Sklute, E. C., Domingue-Loren, D., Glotch, T. D., Rucks, M. J., and **Ye, C.** (2021). A New Open Source Hapke Radiative Transfer Program for Determining Optical Constants and Analyzing Phase Behavior. *52nd Lunar and Planetary Science Conference*, Abstract #1258.

Ye, C., Legett IV, C., Ito, G., and Gloth, T. D. (2020) Modeling Spectra of Transparent Mineral-Bearing Media: Implications for Spectra of Chloride-Bearing Deposits on Mars. *51st Lunar and Planetary Science Conference*, Abstract #1561.

Glotch, T. D., **Ye, C.**, Young, J. M., Lindsley, D. H., Nekvasil, H., Dyar, M. D., and Sklute, E. C. (2019) Spectroscopy of synthetic pigeonite standards. *50th Lunar and Planetary Science Conference*, Abstract #2420.

Ye, C., Sklute, E. C., and Glotch, T. D. (2019). Mind the gap: Methods for combining optical constants from visible to infrared in the Kramers-Kronig analysis associated with Hapke modeling. *50th Lunar and Planetary Science Conference*, Abstract #2211.

Ye, C., and Glotch, T. D. (2018). Spectral properties of chloride salt-bearing assemblages: Implications for detection limits of minor phases in chloride-bearing deposits on Mars. *Asia Oceania Geosciences Society 15th Annual Meeting*.

Ye, C., Glotch, T. D., and Sklute, E. C. (2018). VNIR optical constants of hydrous Ca-sulfate: Gypsum and bassanite. *49th Lunar and Planetary Science Conference*, Abstract #1329.

Ye, C., Glotch, T. D. (2017). Spectroscopic detection limits of minor phases in chloride-bearing mineral mixutres. *48th Lunar and Planetary Science Conference*, Abstract #2282.

Ye C., Glotch T. D. (2016). VNIR and MIR spectral features and detection limits of minor phases in chloride-bearing mineral mixtures. *AGU,* Abstract P21C-2123.

OUTREACH ACTIVITIES:

- *Red Sox NASA STEM Day*, Fenway Park, Boston, September 19, 2019.
- *AstroFest*, Astronomy Club and Earth and Planetary Science Club, Stony Brook University, April 26, 2018.
- *CommUniversity Day*, Department of Geosciences table “Discovery Zone”, Stony Brook University, September 23, 2017.