

# SHANE WESLEY STONE *Ph.D. Candidate*

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## EDUCATION

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University of Arizona

**Ph.D. Candidate in Planetary Sciences**

2017 – Present

Mars through the inlet of MAVEN NGIMS

Advisor: Prof. Roger V. Yelle

**Master of Science in Planetary Sciences**

2014 – 2017

University of California, Los Angeles

**Master of Science in Organic Chemistry**

2011 – 2014

*Controlled Polymerization of  $\alpha$ -Amino Acid N-Thiocarboxyanhydrides*

Advisor: Prof. Timothy J. Deming

University of Texas at Dallas

**Bachelor of Science in Chemistry, summa cum laude with honors and distinction**

2007 – 2011

*Poly(3-hexylthiophene)-based Block Copolymers for Hybrid Solar Cells*

Advisor: Prof. John P. Ferraris

## TEACHING

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University of California, Los Angeles

**Teaching Associate, CHEM 136: Organic Spectroscopic Methods**

Spring 2014

Laboratory; chemical problem solving with emphasis on structure determination using 1D and 2D NMR, IR, mass spectrometry, and x-ray crystallography.

**Teaching Assistant, CHEM 14D: Organic Reactions**

Fall 2013

Organic reaction mechanisms; nucleophilic and electrophilic substitutions and additions, electrophilic aromatic substitutions, carbonyl reactions, and catalysis.

**Teaching Assistant, CHEM 14C: Organic Molecular Structure**

5 quarters, 2011 – 2013

Molecular structure with emphasis on biological applications; stereochemistry; resonance, conjugation, and aromaticity; mass spectrometry, IR, NMR; effects of structure on physical and chemical properties; survey of biomolecular structure.

## AWARDS & FELLOWSHIPS

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- University of Arizona Galileo Circle Scholarship, 2019
- ESA Travel Grant, 52<sup>nd</sup> ESLAB Symposium, 2018
- AAS International Travel Grant, 2018
- UA Graduate and Professional Student Council International Travel Grant, 2018
- Best Graduate Student Talk, Lunar and Planetary Laboratory Conference, 2017
- NASA Group Achievement Award: MAVEN Science Team, 2016
- NASA RHG Exceptional Achievement for Science: MAVEN Science Team, 2016
- Honorable Mention, National Science Foundation Graduate Research Fellowship, 2013
- UCLA Graduate Division Unrestricted Fellowship, Spring 2013
- UCLA Hanson-Dow Teaching Assistant Award, Fall 2012
- UCLA Christopher S. Foote Graduate Fellowship, 2011 – 2013
- UTD Undergraduate Research Scholar Award, 2009 – 2010 and 2010 – 2011

## SERVICE

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- LPL Graduate Representative to the Faculty, 2018 – 2019
- Executive Secretary, NASA Review Panel, 2018
- LPL Graduate Outreach Coordinator, 2017 – 2019
- LPL Graduate Student Colloquium Coordinator, 2016 – 2018
- Student Member, American Geophysical Union, 2015 – Present
- Junior Member, American Astronomical Society, 2014 – Present
- President, UCLA Chemistry and Biochemistry Graduate Student Association, 2013 – 2014
- Founding Member, UCLA Chemistry and Biochemistry Graduate Student Association, 2012 – 2013
- Student Member, American Chemical Society, 2009 – Present

## PUBLICATIONS

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12. J. Cui, Y.-T. Cao, X.-S. Wu, S.-S. Xu, R. V. Yelle, S. Stone, E. Vigren, N. J. T. Edberg, C.-L. Shen, F. He, Y. Wei. Evaluating Local Ionization Balance in the Nightside Martian Upper Atmosphere during MAVEN Deep Dip Campaigns. *Ap. J. Lett.*, **2019**, 876, L12, doi:10.3847/2041-8213/ab1b34.
11. M. Mayyasi, J. Clarke, D. Bhattacharyya, J.-Y. Chaufray, M. Benna, P. Mahaffy, **S. W. Stone**, R. Yelle, E. Thiemann, M. Chaffin, J. Deighan, S. Jain, N. Schneider, B. Jakosky. Seasonal variability of Deuterium in the Upper Atmosphere of Mars. *J. Geophys. Res. Space Phys.*, **2019**, 124, 2152–2164, doi:10.1029/2018JA026244.
10. M. Slipski, B. M. Jakosky, M. Benna, M. Elrod, P. Mahaffy, D. Kass, **S. W. Stone**, R. V. Yelle. Variability of Martian Turbopause Altitudes. *J. Geophys. Res. Planets*, **2018**, 123, doi:10.1029/2018JE005704.
9. **S. W. Stone**, R. V. Yelle, M. Benna, M. K. Elrod, P. R. Mahaffy. Thermal Structure of the Martian Upper Atmosphere from MAVEN NGIMS. *J. Geophys. Res. Planets*, **2018**, 123, doi:10.1029/2018JE005559.
8. B. M. Jakosky and 131 others including **S. W. Stone**. Loss of the Martian atmosphere to space: Present-day loss rates determined from MAVEN observations and integrated loss through time. *Icarus*, **2018**, 315, 146–157 doi:10.1016/j.icarus.2018.05.030.
7. J. Cui, R. V. Yelle, L.-L. Zhao, **S. W. Stone**, F.-Y. Zhang, Y.-T. Cao, M.-J. Yao, T. T. Koskinen, Y. Wei. The Impact of Crustal Magnetic Fields on the Thermal Structure of the Martian Upper Atmosphere. *Astrophys. J. Lett.*, **2018**, 853(2), L33, doi:10.3847/2041-8213/aaa89a.
6. B. M. Jakosky, M. Slipski, M. Benna, P. R. Mahaffy, M. K. Elrod, R. V. Yelle, **S. W. Stone**, N. Alsaed. Mars' atmospheric history derived from upper-atmosphere measurements of  $^{38}\text{Ar}/^{36}\text{Ar}$ . *Science*, **2017**, 355(6332), 1408–1410, doi:10.1126/science.aai7721.
5. M. K. Elrod, S. W. Bougher, J. Bell, P. R. Mahaffy, M. Benna, **S. W. Stone**, R. V. Yelle, B. M. Jakosky. He bulge revealed: He and  $\text{CO}_2$  diurnal and seasonal variations in the upper atmosphere of Mars as detected by MAVEN NGIMS. *J. Geophys. Res. Space Phys.*, **2017**, 122(2), 2564–2573, doi:10.1002/2016JA023482.
4. P. R. Mahaffy, M. Benna, M. K. Elrod, R. V. Yelle, S. W. Bougher, **S. W. Stone**, B. M. Jakosky. Structure and composition of the neutral upper atmosphere of Mars from the MAVEN NGIMS investigation. *Geophys. Res. Lett.*, **2015**, 42(21), 8951–8957 doi:10.1002/2015GL065329.
3. S. W. Bougher and 93 others including **S. W. Stone**. Early MAVEN Deep Dip campaign reveals thermo-sphere and ionosphere variability. *Science*, **2015**, 350(6261), aad0459, doi:10.1126/science.aad0459.
2. B. M. Jakosky and 93 others including **S. W. Stone**. MAVEN observations of the response of Mars to an interplanetary coronal mass ejection. *Science*, **2015**, 350(6261), aad0210, doi:10.1126/science.aad0210.
1. D. Lee, **S. W. Stone**, J. P. Ferraris. A novel dialkylthio benzo[1,2-b:4,5-b']dithiophene derivative for high open-circuit voltage in polymer solar cells. *Chem. Commun.*, **2011**, 47(39), 10987–10989, doi:10.1039/C1CC14780C.

## TALKS & POSTERS

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20. MAVEN Project Science Group Meeting, April 17, 2019  
*Transport of Water to the Martian Upper Atmosphere amid Regional and Global Dust Storms (Poster)*
19. American Geophysical Union 2018 Fall Meeting, December 12, 2018  
*The Variation of Hydrogen in the Upper Atmosphere of Mars as Observed by MAVEN NGIMS*
18. MAVEN Project Science Group Meeting, September 25, 2018  
*Variation of Hydrogen in the Upper Atmosphere of Mars as Observed by MAVEN NGIMS (Poster)*
17. Lunar and Planetary Laboratory Conference, August 17, 2018  
*Global Dust Storm 2018a and Upper Atmospheric Hydrogen at Mars*
16. 52<sup>nd</sup> ESLAB Symposium: Comparative Aeronomy and Plasma Environments of Terrestrial Planets, May 14, 2018  
*Protonated Ions and the Seasonal Variation of Hydrogen Observed by MAVEN NGIMS*
15. MAVEN Project Science Group Meeting, March 15, 2018  
*Protonated Ions and the Seasonal Variation of Hydrogen Observed by NGIMS (Poster)*
14. Lunar and Planetary Laboratory Conference, August 18, 2017  
*Temperature Structure of the Martian Upper Atmosphere from MAVEN NGIMS*
13. International Conference on Mars Aeronomy, May 15, 2017  
*Temperature Variations of the Martian Upper Atmosphere from MAVEN NGIMS*
12. MAVEN Project Science Group Meeting, November 14, 2016  
*Validation of NGIMS O Densities*
11. Division for Planetary Sciences 48 / European Planetary Science Congress 11, October 19, 2016  
*Temperature Variations in the Martian Upper Atmosphere from the MAVEN Neutral Gas and Ion Mass Spectrometer*
10. Lunar and Planetary Laboratory Conference, August 19, 2016  
*Temperatures of the Martian Upper Atmosphere from MAVEN NGIMS*
9. American Geophysical Union 2015 Fall Meeting, December 15, 2015  
*He Bulge Detection by MAVEN NGIMS in the Upper Atmosphere of Mars (Poster)*
8. American Geophysical Union 2015 Fall Meeting, December 15, 2015  
*Retrieval and Distribution of Neutral and Ionic Species in the Martian Upper Atmosphere as Measured by MAVEN NGIMS (Poster)*

7. MAVEN Project Science Group Meeting, *October 28, 2015*  
*Thermospheric Temperatures Profiles from NGIMS Deep Dip Data*
6. Lunar and Planetary Laboratory Graduate Student Colloquium, *September 29, 2015*  
*Recent Results from MAVEN NGIMS*
5. Lunar and Planetary Laboratory Conference, *August 20, 2015*  
*Recent Results from MAVEN NGIMS*
4. Lunar and Planetary Laboratory Graduate Student Colloquium, *May 5, 2015*  
*Membrane Alternatives in Worlds without Oxygen: Creation of an Azosome*
3. Lunar and Planetary Laboratory Conference, *August 22, 2014*  
*The van der Waals Dimer of Hydrogen Cyanide in Titan's Atmosphere*
2. UCLA Organic Chemistry Graduate Student Seminar, *March 4, 2013*  
*The Chemistry of Borole*
1. American Chemical Society 43<sup>rd</sup> Annual Dallas-Fort Worth Meeting-in-Miniature, *April 17, 2010*  
*Progress toward block copolymers for photovoltaic applications*