Last updated January 2026

Publications:

Summary: 85 peer-reviewed publications: 82 published, 3 under review, 15 first author, 25 second author, 24 papers led by student authors directly supervised. 3 Nature (1 as first-author), 1 Science.

h-index=43, total citations: ~6000** (**google scholar 2026)

*= student/postdoc author directly supervised:

1) Rogers, J. G., Young, E. D., & Schlichting, H. E. (2025).
Redefining interiors and envelopes: hydrogen–silicate miscibility and its consequences for the structure and evolution of sub-Neptunes. *Monthly Notices of the Royal Astronomical Society*, **544**, 3496–3511.

2) Nixon, M. C., Somers, R. S., Savel, A. B., Ih, J., Kempton, E. M.-R., Young, E. D., Schlichting, H. E., et al. (2025).
Magma ocean interactions can explain JWST observations of the sub-Neptune TOI-270 d. *The Astrophysical Journal*, **995**, 95.

3) Stetzler, S., Jurić, M., Bernardinelli, P. H., Bektešević, D., Chandler, C. O., Connolly, A. J., … Schlichting, H., et al. (2025).
An efficient shift-and-stack algorithm applied to detection catalogs. *The Astronomical Journal*, **170**, 352.

4) Coulombe, L.-P., Benneke, B., Krissansen-Totton, J., L'Heureux, A., Piaulet-Ghorayeb, C., Radica, M., … Schlichting, H. E., et al. (2025).
Possible evidence for the presence of volatiles on the warm super-Earth TOI-270 b. *The Astronomical Journal*, **170**, 226.

5) Werlen, A., Dorn, C., Burn, R., Schlichting, H. E., Grimm, S. L., & Young, E. D. (2025).
Sub-Neptunes are drier than they seem: rethinking the origins of water-rich worlds. *The Astrophysical Journal Letters*, **991**, L16.

6) Barat, S., Désert, J.-M., Mukherjee, S., Goyal, J. M., Xue, Q., Kawashima, Y., … Schlichting, H. E., et al. (2025).
A metal-poor atmosphere with a hot interior for a young sub-Neptune progenitor: JWST/NIRSpec transmission spectrum of V1298 Tau b. *The Astronomical Journal*, **170**, 165.

7) Werlen, A., Dorn, C., Schlichting, H. E., Grimm, S. L., & Young, E. D. (2025).
Atmospheric C/O ratios of sub-Neptunes with magma oceans: homemade rather than inherited. *The Astrophysical Journal Letters*, **988**, L55.

8) Ahrer, E.-M., Radica, M., Piaulet-Ghorayeb, C., Raul, E., Wiser, L., Welbanks, L., … Schlichting, H. E., et al. (2025).
Escaping helium and a highly muted spectrum suggest a metal-enriched atmosphere on sub-Neptune GJ 3090 b from JWST transit spectroscopy. *The Astrophysical Journal Letters*, **985**, L10.

9) Gupta, A., Stixrude, L., & Schlichting, H. E. (2025).
The miscibility of hydrogen and water in planetary atmospheres and interiors. *The Astrophysical Journal Letters*, **982**, L35.

10) Loyd, R. O. P., Schreyer, E., Owen, J. E., Rogers, J. G., Broome, M. I., … Schlichting, H. E., et al. (2025).
Hydrogen escaping from a pair of exoplanets smaller than Neptune. *Nature*, **638**, 636–639.

11) Misener, W., Schulik, M., Schlichting, H. E., & Owen, J. E. (2025).
Blowin' in the nonisothermal wind: core-powered mass loss with hydrodynamic radiative transfer. *The Astrophysical Journal*, **980**, 152.

12) Rogers, J. G., Dorn, C., Aditya Raj, V., Schlichting, H. E., & Young, E. D. (2025).
Most super-Earths have less than 3% water. *The Astrophysical Journal*, **979**, 79.

13) Hanf, B., Kincaid, W., Schlichting, H., Cappiello, L., & Tamayo, D. (2025).
Orbital migration through atmospheric mass loss. *The Astronomical Journal*, **169**, 19.

14) Young, E. D., Stixrude, L., Rogers, J. G., Schlichting, H. E., & Marcum, S. P. (2024).
Phase equilibria of sub-Neptunes and super-Earths. *The Planetary Science Journal*, **5**, 268.

15) Piaulet-Ghorayeb, C., Benneke, B., Radica, M., Raul, E., Coulombe, L.-P., Ahrer, E.-M., … Schlichting, H. E., et al. (2024).
JWST/NIRISS reveals the water-rich "steam world" atmosphere of GJ 9827 d. *The Astrophysical Journal Letters*, **974**, L10.

16) Strauss, R., McNeill, A., Trilling, D. E., Valdes, F., Bernardinelli, P. H., Fuentes, C., … Schlichting, H. E., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). VII. The strengths of three superfast rotating main-belt asteroids from a preliminary search of DEEP data. *The Astronomical Journal*, **168**, 184.

17) Ho, C. S. K., Rogers, J. G., Van Eylen, V., Owen, J. E., & Schlichting, H. E. (2024).
Shallower radius valley around low-mass hosts: evidence for icy planets, collisions, or high-energy radiation scatter. *Monthly Notices of the Royal Astronomical Society*, **531**, 3698–3714.

18) Rogers, J. G., Schlichting, H. E., & Young, E. D. (2024).
Fleeting but not forgotten: the imprint of escaping hydrogen atmospheres on super-Earth interiors. *The Astrophysical Journal*, **970**, 47.

19) Afkanpour, Z., Ataiee, S., Ziampras, A., Penzlin, A. B. T., Sfair, R., Schäfer, C., Kley, W., & Schlichting, H. (2024).
Overstability of the 2:1 mean motion resonance: exploring disc parameters with hydrodynamic simulations. *Astronomy & Astrophysics*, **686**, A277.

20) Rogers, J. G., Owen, J. E., & Schlichting, H. E. (2024).
Under the light of a new star: evolution of planetary atmospheres through protoplanetary disc dispersal and boil-off. *Monthly Notices of the Royal Astronomical Society*, **529**, 2716–2733.

21) Thomas, C. A., Weiss, L. M., Isaacson, H., Schlichting, H. E., et al. (2024).
A tale of two peas in a pod: the Kepler-323 and Kepler-104 systems. *The Astronomical Journal*, **167**, 160.

22) Smotherman, H., Bernardinelli, P. H., Portillo, S. K. N., Connolly, A. J., … Schlichting, H., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). VI. First multiyear observations of trans-Neptunian objects. *The Astronomical Journal*, **167**, 136.

23) Strauss, R., Trilling, D. E., Bernardinelli, P. H., Beach, C., Oldroyd, W. J., Sheppard, S. S., … Schlichting, H. E., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). IV. Constraints on the shape distribution of bright trans-Neptunian objects. *The Astronomical Journal*, **167**, 135.

24) Bernardinelli, P. H., Smotherman, H., Langford, Z., Portillo, S. K. N., … Schlichting, H., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). III. Survey characterization and simulation methods. *The Astronomical Journal*, **167**, 134.

25) Trujillo, C. A., Fuentes, C., Gerdes, D. W., Markwardt, L., … Schlichting, H., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). II. Observational strategy and design. *The Astronomical Journal*, **167**, 133.

26) Trilling, D. E., Gerdes, D. W., Jurić, M., Trujillo, C. A., … Schlichting, H., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). I. Survey description, science questions, and technical demonstration. *The Astronomical Journal*, **167**, 132.

27) Napier, K. J., Lin, H. W., Gerdes, D. W., Adams, F. C., … Schlichting, H. E., et al. (2024).
The DECam Ecliptic Exploration Project (DEEP). V. The absolute magnitude distribution of the cold classical Kuiper Belt. *The Planetary Science Journal*, **5**, 50.

28) Owen, J. E., & Schlichting, H. E. (2024).
Mapping out the parameter space for photoevaporation and core-powered mass-loss. *Monthly Notices of the Royal Astronomical Society*, **528**, 1615–1629.

29) Householder, A., Weiss, L. M., Owen, J. E., Isaacson, H., … Schlichting, H. E., et al. (2024).
Investigating the atmospheric mass loss of the Kepler-105 planets straddling the radius gap. *The Astronomical Journal*, **167**, 84.

30) Weiss, L. M., Isaacson, H., Howard, A. W., Fulton, B. J., … Schlichting, H. E., et al. (2024).
The Kepler Giant Planet Search. I. A decade of Kepler planet-host radial velocities from W. M. Keck Observatory. *The Astrophysical Journal Supplement Series*, **270**, 8

31) Zhang, Q., Hallinan, G. W., Saini, N. S., Schlichting, H. E., Harding, L. K., & Milburn, J. W. (2023).
CHIMERA occultation constraints on the abundance of kilometer-scale Kuiper Belt objects. *The Astronomical Journal*, **166**, 242.

32) Misener, W., Schlichting, H. E., & Young, E. D. (2023).
Atmospheres as windows into sub-Neptune interiors: coupled chemistry and structure of hydrogen–silane–water envelopes. *Monthly Notices of the Royal Astronomical Society*, **524**, 981–992.

33) Young, E. D., Shahar, A., & Schlichting, H. E. (2023).
Earth shaped by primordial H_2 atmospheres. *Nature*, **616**, 306–311.

34) Rogers, J. G., Schlichting, H. E., & Owen, J. E. (2023).
Conclusive evidence for a population of water worlds around M dwarfs remains elusive. *The Astrophysical Journal Letters*, **947**, L19.

35) Owen, J. E., Murray-Clay, R. A., Schreyer, E., Schlichting, H. E., Ardila, D., Gupta, A., Loyd, R. O. P., Shkolnik, E. L., Sing, D. K., & Swain, M. R. (2023).
The fundamentals of Lyman-α exoplanet transits. *Monthly Notices of the Royal Astronomical Society*, **518**, 4357–4371.

36) Gupta, A., Nicholson, L., & Schlichting, H. E. (2022).
Properties of the radius valley around low-mass stars: predictions from the core-powered mass-loss mechanism. *Monthly Notices of the Royal Astronomical Society*, **516**, 4585–4593.

37) Izidoro, A., Schlichting, H. E., Isella, A., Dasgupta, R., Zimmermann, C., & Bitsch, B. (2022).
The exoplanet radius valley from gas-driven planet migration and breaking of resonant chains. *The Astrophysical Journal Letters*, **939**, L19.

38) Feinstein, A. D., France, K., Youngblood, A., Duvvuri, G. M., Teal, D. J., Cauley, P. W., … Schlichting, H. (2022).
AU Microscopii in the far-UV: observations in quiescence, during flares, and implications for AU Mic b and c. *The Astronomical Journal*, **164**, 110.

39) Misener, W., & Schlichting, H. E. (2022).
The importance of silicate vapour in determining the structure, radii, and envelope mass fractions of sub-Neptunes. *Monthly Notices of the Royal Astronomical Society*, **514**, 6025–6037.

40) Trierweiler, I. L., & Schlichting, H. E. (2022).
Atmosphere loss by aerial bursts. *Monthly Notices of the Royal Astronomical Society*, **514**, 3650–3659.

41) Vizgan, D., Hughes, A. M., Carter, E. S., Flaherty, K. M., Pan, M., Chiang, E., Schlichting, H., et al. (2022).
Multiwavelength vertical structure in the AU Mic debris disk: characterizing the collisional cascade. *The Astrophysical Journal*, **935**, 131.

42) Schlichting, H. E., & Young, E. D. (2022).
Chemical equilibrium between cores, mantles, and atmospheres of super-Earths and sub-Neptunes and implications for their compositions, interiors, and evolution. *The Planetary Science Journal*, **3**, 127.

43) Rogers, J. G., Gupta, A., Owen, J. E., & Schlichting, H. E. (2021).
Photoevaporation versus core-powered mass-loss: model comparison with the 3D radius gap. *Monthly Notices of the Royal Astronomical Society*, **508**, 5886–5902.

44) Gupta, A., & Schlichting, H. E. (2021).
Caught in the act: core-powered mass-loss predictions for observing atmospheric escape. *Monthly Notices of the Royal Astronomical Society*, **504**, 4634–4648.

45) Misener, W., & Schlichting, H. E. (2021).
To cool is to keep: residual H/He atmospheres of super-Earths and sub-Neptunes. *Monthly Notices of the Royal Astronomical Society*, **503**, 5658–5674.

46) Biersteker, J. B., & Schlichting, H. E. (2021).
Losing oceans: the effects of composition on the thermal component of impact-driven atmospheric loss. *Monthly Notices of the Royal Astronomical Society*, **501**, 587–595.

47) Doyle, A. E., Klein, B., Schlichting, H. E., & Young, E. D. (2020).
Where are the extrasolar Mercuries? *The Astrophysical Journal*, **901**, 10.

48) Gupta, A., & Schlichting, H. E. (2020).
Signatures of the core-powered mass-loss mechanism in the exoplanet population: dependence on stellar properties and observational predictions. *Monthly Notices of the Royal Astronomical Society*, **493**, 792–806.

49) Doyle, A. E., Young, E. D., Klein, B., Zuckerman, B., & Schlichting, H. E. (2019).
Oxygen fugacities of extrasolar rocks: evidence for an Earth-like geochemistry of exoplanets. *Science*, **366**, 356–359.

50) Gupta, A., & Schlichting, H. E. (2019).
Sculpting the valley in the radius distribution of small exoplanets as a by-product of planet formation: the core-powered mass-loss mechanism. *Monthly Notices of the Royal Astronomical Society*, **487**, 24–33.

51) Yalinewich, A., & Schlichting, H. E. (2019).
Atmospheric mass-loss from high-velocity giant impacts. *Monthly Notices of the Royal Astronomical Society*, **486**, 2780–2789.

52) Powell, D., Murray-Clay, R., Pérez, L. M., Schlichting, H. E., & Rosenthal, M. (2019).
New constraints from dust lines on the surface densities of protoplanetary disks. *The Astrophysical Journal*, **878**, 116.

53) Biersteker, J. B., & Schlichting, H. E. (2019).
Atmospheric mass-loss due to giant impacts: the importance of the thermal component for hydrogen–helium envelopes. *Monthly Notices of the Royal Astronomical Society*, **485**, 4454–4463.

54) Young, E. D., Shahar, A., Nimmo, F., Schlichting, H. E., Schauble, E. A., Tang, H., & Labidi, J. (2019).
Near-equilibrium isotope fractionation during planetesimal evaporation. *Icarus*, **323**, 1–15.

55) Daley, C., Hughes, A. M., Carter, E. S., Flaherty, K., Lambros, Z., Pan, M., Schlichting, H., et al. (2019).
The mass of stirring bodies in the AU Mic debris disk inferred from resolved vertical structure. *The Astrophysical Journal*, **875**, 87.

56) Ginzburg, S., Schlichting, H. E., & Sari, R. (2018).
Core-powered mass-loss and the radius distribution of small exoplanets. *Monthly Notices of the Royal Astronomical Society*, **476**, 759–765.

57) Schlichting, H. E., & Mukhopadhyay, S. (2018).
Atmosphere impact losses. *Space Science Reviews*, **214**, 34.

58) Biersteker, J. B., & Schlichting, H. E. (2017).
Determining exoplanetary oblateness using transit depth variations. *The Astronomical Journal*, **154**, 164.

59) Goldreich, P., & Schlichting, H. E. (2017).
Overstable librations can account for the paucity of mean motion resonances among exoplanet pairs. *The Astronomical Journal*, **147**, 32.

60) Powell, D., Murray-Clay, R., & Schlichting, H. E. (2017).
Using ice and dust lines to constrain the surface densities of protoplanetary disks. *The Astrophysical Journal*, **840**, 93.

61) Ginzburg, S., Schlichting, H. E., & Sari, R. (2016).
Super-Earth atmospheres: self-consistent gas accretion and retention. *The Astrophysical Journal*, **825**, 29.

62) Harding, L. K., Hallinan, G., Milburn, J., Gardner, P., Konidaris, N., Singh, N., … Schlichting, H. E., et al. (2016).
CHIMERA: a wide-field, multi-colour, high-speed photometer at the prime focus of the Hale telescope. *Monthly Notices of the Royal Astronomical Society*, **457**, 3036–3049.

63) Inamdar, N. K., & Schlichting, H. E. (2016).
Stealing the gas: giant impacts and the large diversity in exoplanet densities. *The Astrophysical Journal Letters*, **817**, L13.

64) Heising, M. Z., Marcy, G. W., & Schlichting, H. E. (2015).
A search for ringed exoplanets using *Kepler* photometry. *The Astrophysical Journal*, **814**, 81.

65) Inamdar, N. K., & Schlichting, H. E. (2015).
The formation of super-Earths and mini-Neptunes with giant impacts. *Monthly Notices of the Royal Astronomical Society*, **448**, 1751–1760.

66) Schlichting, H. E., Sari, R., & Yalinewich, A. (2015).
Atmospheric mass loss during planet formation: the importance of planetesimal impacts. *Icarus*, **247**, 81–94.

67) Schlichting, H. E. (2014).
Formation of close-in super-Earths and mini-Neptunes: required disk masses and their implications. *The Astrophysical Journal Letters*, **795**, L15.

68) Raymond, S. N., Schlichting, H. E., Hersant, F., & Selsis, F. (2013).
Dynamical and collisional constraints on a stochastic late veneer on the terrestrial planets. *Icarus*, **226**, 671–681.

69) Schlichting, H. E., & Fuentes, C. I., & Trilling, D. E. (2013).
Initial planetesimal sizes and the size distribution of small Kuiper Belt objects. *The Astronomical Journal*, **146**, 36.

70) Schlichting, H. E., Ofek, E. O., Sari, R., Nelan, E. P., Gal-Yam, A., Wenz, M., et al. (2012).
Measuring the abundance of sub-kilometer-sized Kuiper Belt objects using stellar occultations. *The Astrophysical Journal*, **761**, 150.

71) Schlichting, H. E., Warren, P. H., & Yin, Q.-Z. (2012).
The last stages of terrestrial planet formation: dynamical friction and the late veneer. *The Astrophysical Journal*, **752**, 8.

72) Pan, M., & Schlichting, H. E. (2012).
Self-consistent size and velocity distributions of collisional cascades. *The Astrophysical Journal*, **747**, 113.

73) Schlichting, H. E., & Chang, P. (2011).
Warm Saturns: on the nature of rings around extrasolar planets that reside inside the ice line. *The Astrophysical Journal*, **734**, 117.

74) Murray-Clay, R. A., & Schlichting, H. E. (2011).
Using Kuiper Belt binaries to constrain Neptune's migration history. *The Astrophysical Journal*, **730**, 132.

75) Schlichting, H. E., & Sari, R. (2011).
Runaway growth during planet formation: explaining the size distribution of large Kuiper Belt objects. *The Astrophysical Journal*, **728**, 68.

76) Schlichting, H. E., Ofek, E. O., Wenz, M., Sari, R., Gal-Yam, A., Livio, M., & Nelan, E. (2009).
A single sub-kilometre Kuiper Belt object from a stellar occultation in archival data. *Nature*, **462**, 895–897.

77) Schlichting, H. E., & Sari, R. (2009).
The creation of Haumea's collisional family. *The Astrophysical Journal*, **700**, 1242–1246.

78) Schlichting, H. E., & Sari, R. (2008).
The ratio of retrograde to prograde orbits: a test for Kuiper Belt binary formation theories. *The Astrophysical Journal*, **686**, 741–747.

79) Schlichting, H. E., & Sari, R. (2008).
Formation of Kuiper Belt binaries. *The Astrophysical Journal*, **673**, 1218–1224.

80) Collins, B.F., Schlichting, H. E., & Sari, R. (2007).
The Self-Similarity of Shear-Dominated Viscous Stirring, *The Astrophysical Journal*, **133**, 2389

81) Schlichting, H. E., & Sari, R. (2007).
The Effect of Semicollisional Accretion on Planetary Spins, *The Astrophysical Journal*, **658**, 593

82) J. Gebauer, E. Lorenz, R. Mirzoyan, H. E. Schlichting and F. Steinbügl (2004)
A study of a long water detector for cosmic-ray studies, *NIMA,* **518,** 198