Tracy M. Becker, Ph.D.

Group Leader, R&D
Department of Space Science Division
Southwest Research Institute (SwRI)
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Education

Ph.D., Physics / Planetary Sciences; University of Central Florida (UCF), 2016
B.S., Astrophysics; Minor, Latin American Studies; Lehigh University, 2010

Professional Chronology

Group Leader R&D (SwRI 2020+); **UTSA Adjoint Faculty** (2020+) Research Scientist (SwRI 2018-2020); Postdoc (SwRI 2016-2018); Grad Research Asst (UCF 2011-2016), Teaching Asst (UCF 2010-2013), NSF-REU (CTIO 2009), NSF-REU (Arecibo Obs., 2008).

Projects & Research Experience

- **NASA Europa Clipper (Co-I)** Europa-UVS Co-Deputy PI (2018+)
- **NASA New Horizons (Co-I)** Alice Instrument Deputy PI (2022+)
- **ESA JUICE Mission (Affiliate)** JUICE-UVS (2018+)
- **Cassini Data Analysis Program (PI):** Determining Particle Sizes & Composition of Saturn's Rings (2019 - 2023)
- **HST Grants (PI)**: Water on Metallic Asteroids (Cy 28); Europa in the Mid-UV (Cy 25); Stellar Occultation by Saturn's Rings (Cy 25); Psyche's UV Reflectance (Cy 24)
- **JWST Grants (Co-I):** Metallic Asteroid Psyche (Cy1); Water Searches on Asteroids (Cy2)
- **NASA PMCS (Co-I):** Neptune Odyssey Mission to the Neptune-Triton system (2019-2020)
- **Arecibo Observatory** Science Communication Lead (2018-2023)
- **Solar System Observations Program (Co-I):** Arecibo Observatory Radar (2019-2024)
- **NASA Cassini Mission:** UVIS grad student participant (2011 - 2015)

Recent Honors & Awards

- AAS DPS Carl Sagan Medal (2023)
- ESA Juice Mission Contribution (2023)
- San Antonio Business Journal 40 Under 40 (2021)
- NASA PI Launchpad Workshop Attendee (2019)
- NASA Group Achievement Award for Cassini UVIS Science Team (2018)
- OPAG Early Career Travel Award (2018)
- UCF College of Sciences Award for Outstanding Dissertation (2016)
- Asteroid 26471 Tracybecker (2016)

Leadership

- Composition Working Group Co-Chair for Europa Clipper Mission (2019-2022)
- Neptune Rings & Moons Working Group Co-Chair PMCS Odyssey Concept Study
- SwRI Business Development Team (2018+)

Research Interests

- Satellite and asteroid surface compositions from UV - IR reflectance observations
- Ring particle properties from stellar occultation and imaging data
- Radar observations and derived physical shapes of near-Earth asteroids

Professional & Public Service

- DPS-EPSC 2023 Meeting SOC Co-Chair (2023)
- Celebración Celestial - Solar Eclipse Outreach Committee (2023-2024)
- Professional Development Subcommittee of the DPS (2023+)
- NASA Here 2 Observe (H2O) (2022+)
- AGU Voices for Science (2018)
- JPL Solar System Ambassador (2017+)
- Local Organizing Lead for SACNAS - Día de la Física 1-day conference (2018)
- Co-Founder/Organizer of Astronomy on Tap in San Antonio, TX (2017+)

Mentorship Experience

- Aaron Deleon; PhD student (2022-present)
- Michael Velez; PhD Committee Member (2022-present)
- Emma Cerwin; HS Independent Study Mentorship Program (2023-24)
- Anicia Arredondo; postdoc (2022-2023)
- Stephanie Jarmak; postdoc (2020-2022)
- Emma Peavler; undergrad intern (2019)
- Jasmine Manansala HS Independent Study Mentorship Program (2018-2019)
- Nirja Shah; HS ASPIRE student (2014-2016)

Selected Publications

1. Arredondo, A., McAdam, M. M., Hannibal, C. I., **Becker, T. M.** et al. (2024). Detection of molecular H2O on nominally anhydrous asteroids. *Accepted, PSJ*.
2. Arredondo, A., McAdam, M. M., **Becker**, **T. M.,** et al. (2024). Rotationally-resolved mid-infrared spectroscopy of (16) Psyche. *Accepted, PSJ.*
3. **Becker et al. (2022)** Mid-UV Hubble Obs. of Europa & the Global Distribution of SO2. PSJ 3:129.
4. Trumbo, S. K., **Becker, T. M.,** et al. (2022). A New UV Spectral Feature on Europa: Confirmation of NaCl in Leading-hemisphere Chaos Terrain. Planetary Science Journal 3, 27.
5. Jarmak, S. G., **Becker T. M.**, Colwell J. E., Jeousek R. G., Esposito, L. W., (2022). Solar Occultation Observations of Saturn's Rings with Cassini UVIS. Icarus 288, 115237.
6. **Becker et al. (2020)** HST UV Observations of Asteroid (16) Psyche. PSJ, 1:53.
7. **Becker et al. (2018)** The Far-UV Albedo of Europa- HST Obs. JGR-Planets, 123.
8. **Becker et al. (2018)** Cassini UVIS Solar occultations by Saturn's F ring & the detection of collision-produced micron-sized dust. Icarus 306, 171–199.
9. **Becker et al. (2016)** Characterizing the Particle Size Distribution of Saturn's A Ring with Cassini UVIS Occultation Data. Icarus 279, 20 - 35.
10. **Becker et al. (2015)** Physical Modeling of triple near-Earth asteroid 2001 SN263 from radar and optical light curve observations. Icarus, 248, 499-515.