

# Nolan M. Habel

Universities Space Research Association

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## Education:

### **Ph.D. Physics (Concentration Astronomy)**

University of Toledo (2016-2022)

Dissertation Advisor: Dr. S. Thomas Megeath

### **B.S. Physics & B.S. Mathematics**

University of Cincinnati (2011-2015)

Capstone Advisors: Dr. Frank Pinski, Dr. Benjamin Vaughn

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## Research Interests:

Star formation, protostellar outflow feedback, ISM/protostar interaction, inner protostellar disk processes, early planet formation, high spatial resolution near-infrared imaging, high resolution infrared spectroscopy, time domain observations of protostars

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## Research Experience:

### **Near-IR, High Angular Resolution Observations of Protostars**

University of Toledo (2017-2022)

Data: HST, Herschel

### **High spectral resolution near-IR spectroscopy of protostars**

University of Toledo (2018-2022)

Data: Lowell Discovery Telescope, Gemini South Observatory

### **Exoplanet observation via transit photometry**

University of Cincinnati (2014-2015)

### **Modeling and simulating chaotic dynamical systems**

University of Cincinnati (2015)

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## Awarded Observing Proposals:

### **Co-I.: Investigating Protostellar Accretion Across the Mass Spectrum**

JWST (cycle 1 2022)

### **PI.: An IRTF/SpeX Variability Study of the Edge-On Protostar NGC 1333-20**

IRTF, SpeX (cycle 2020B)

### **PI.: An IRTF/SpeX Variability Study of the Edge-On Protostar OPH[GY92]-30**

IRTF, SpeX (cycle 2021A)

### **PI.: Pilot observation of protostar HY Cha**

Gemini South, IGRINS (compensatory time, cycle 2020A)

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Observing Experience:

**NASA Infrared Telescope Facility (IRTF): infrared spectroscopy with SpeX spectrograph**  
Mauna Kea, Hawai'i (2020, 2021, 2022)

**Lowell Discovery Telescope: infrared spectroscopy with IGRINS & NIHTS spectrographs**  
Lowell Observatory, Arizona (2018, 2019)

**Ritter One-Meter Telescope: spectral polarimetry, spectroscopy, imaging**  
University of Toledo (2017-2019)

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Research Talks and Presentations:

**An HST Survey of Protostellar Outflow Cavities: Does Feedback Clear Envelopes?**  
Invited talk: STScI Exoplanets, Star and Planet Formation (ESPF) seminar series (2021)

**Surveying Protostars within 500 pc with HST**  
Poster: From Stars to Planets II Conference, Chalmers, Gothenburg, Sweden (2019)

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Schools and Training:

**JWST Proposal Workshop**  
University of Michigan (2020)

**Summer School in Statistics for Astronomers**  
Pennsylvania State University (2018)

**La Serena School for Data Science**  
AURA Campus La Serena, Chile (2017)

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Teaching and Mentoring:

**Graduate Member: YSO Lab for undergraduate research**  
University of Toledo (2019-2021)

**Teaching Assistant: Elementary Astronomy Lab**  
University of Toledo (2016-2018)

**Night leader and Undergraduate Trainer: Ritter One-Meter Observing Team**  
University of Toledo (2018-2019)

**Teaching Assistant: Elementary Physics II Lab**  
University of Cincinnati (2013-2015)

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Involvements:

**Member UToledo Internal Time Allocation Committee for Lowell Discovery Telescope**  
University of Toledo (2018-2019)

**Lead manuscript editor: University of Toledo Elementary Astronomy Lab manual**  
University of Toledo (2017)

**Vice President & Webmaster: University of Cincinnati Society of Physics Students**  
University of Cincinnati (2014-2015)

**Co-Founder: University of Cincinnati Exoplanet Search Team (undergraduate observing organization)**  
University of Cincinnati (2015)

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Programming/Technical Proficiency:

**Python (primary language) , Mathematica, IDL, LaTeX, Bash, SpeXTool**

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Peer Reviewed Publications:**An HST Survey of Protostellar Outflow Cavities: Does Feedback Clear Envelopes?**

**Habel, Nolan M.**; Megeath, S. Thomas ; Booker, Joseph Jon ; Fischer, William J.; Kounkel, Marina ; Poteet, Charles ; Furlan, Elise ; Stutz, Amelia ; Manoj, P. ; Tobin, John J.; Nagy, Zsafia ; Pokhrel, Riway ; Watson, Dan (2011 ApJ 911, 21)

**Outbursts and stellar properties of the classical Be star HD 6226**

Richardson, Noel D.; Thizy, Olivier ; Bjorkman, Jon E.; Carciofi, Alex ; Rubio, Amanda C.; Thomas, Joshua D.; Bjorkman, Karen S.; Labadie-Bartz, Jonathan ; Genaro, Matheus ; Wisniewski, John P.; Wang, Luqian ; Gies, Douglas R.; Chojnowski, S. Drew ; Daly, Andrea ; Edwards, Thompson ; Fowler, Carlie ; Gullingsrud, Allison D.; **Habel, Nolan M.** ; James, David J. ; Kehoe, Emily Kuchta, Heidi ; et al. (2021 MNRAS, 508, 2002)

**The M Supergiant High-mass X-Ray Binary 4U 1954+31**

Hinkle, Kenneth H.; Lebzelter, Thomas ; Fekel, Francis C.; Straniero, Oscar ; Joyce, Richard R.; Prato, Lisa ; Karnath, Nicole ; **Habel, Nolan M.** (2020 ApJ 904,11)

**An Updated Ephemeris for the Single-lined Orbit of the Supergiant  $\mu$  Sagittarii**

Johnson, Rachel A. ; Richardson, Noel D. ; Moffat, Anthony F. J. ; Thomas, Joshua D. ; Bohlsen, Terry ; Cacella, Paulo ; Heathcote, Bernard ; Luckas, Paul ; West, Julian ; Couperus, Andrew ; Dulaney, Nicholas A. ; Fabian, Emily ; Fowler, Carlie ; Greco, Jennifer J. ; Gullingsrud, Allison D. ; **Habel, Nolan M.** ; Hardegree-Ullman, Kevin K. ; Kuchta, Heidi ; Legeza, Scott ; Maki, Courtney ; ... et al. (2018, AAS Research Notes Volume 2, Issue 3, 138)

**A New Outburst in the Be star HD 6226 with upcoming HST observations**

Richardson, Noel D.; Chojnowski, S. Drew ; Thomas, Joshua D.; Wisniewski, John P.; Bjorkman, Jon E.; Bjorkman, Karen S.; Trucks, Jesica ; **Habel, Nolan M.** (2018 Astronomer's Telegram, 11367)

Submitted and in Prep:**The Rate, Amplitude and Duration of Outbursts from Class 0 Protostars in Orion**

Zakri, Wafa ; Megeath, S. Thomas ; Fischer, William J. ; Gutermuth Robert ; Furlan, Elise ; Hartmann, Lee ; Karnath, Nicole ; Safron, Emily ; Stanke, Thomas ; Stutz, Amelia M.; Tobin, John J.; Allen, Thomas S.; Federman, Sam ; **Habel, Nolan M.**; Manoj, P.; Narang, Mayank ; Osorio, Mayra ; Pokhrel, Riway ; Rebull, Luisa ; Sheehan, Patrick D. ; Watson, Dan M. (Submitted to ApJ Letters)

**The Role of ISM Gas in Shaping Feedback from Orion Protostars**

**Habel, Nolan M.**; Megeath, S. Thomas ; Stutz, Amelia ; Tobin, John J.; Fischer, William J. ; Kounkel, Marina ; Poteet, Charles ; Furlan, Elise ; Manoj, P.; Pokhrel, Riway; Watson, Dan (In prep)