

## Proseminar: Astrophysik, Sommersemester 2026

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<http://hsweb.hs.uni-hamburg.de/projects/star-formation>

- Termin: Blockveranstaltung am **Dienstag, 2. Juni 2026**
- Ort: Hamburger Sternwarte, Sonnenbau
- Zeit: 14:00 – 16:00
- Vortrag: 20 Minuten, Vortragsfolien werden als Zusammenfassung/Ausarbeitung gewertet
- +10 Minuten Diskussion und Nachbesprechung
- Vortrag kann auf Deutsch oder Englisch gehalten werden

### Tagesablauf für Dienstag, 2. Juni (Stand: 20.05.2026)

Zeit	Thema	
14:00	Einleitung	R. B.
14:30	Inter-/Extragalaktische Magnetfelder	Tjelle Hartwig
15:00	Supernovae–Dunkle-Energie Projekte	Mika Aden

Die Themen sind nach **Absprache** frei wählbar. *Themenvorschläge:*

- **Instellare Medium (ISM): Zusammensetzung, Dynamik, Geschichtliches** (Weigert et al., 2009; Breitschwerdt, 1998)
- **Molekülwolken und Turbulenz** (Ballesteros-Paredes et al., 2007; Ballesteros-Paredes, 2004; Blitz et al., 2007)
- **Entstehung massereicher Sterne** (Zinnecker & Yorke, 2007; Beuther et al., 2007; McKee & Ostriker, 2007)
- **Suche nach extrasolaren Planeten, Methoden & Techniken** (Dvorak, 2007; Ollivier et al., 2009; Seager, 2011)
- **Entstehung von Planeten** (Armitage, 2010; Klahr & Brandner, 2011)
- **Moderne Teleskope und deren Ziele: z.B. ALMA, PLANCK, GAIA, eROSITA, SKA, E-ELT, JWST, TESS, PLATO, EUCLID**
- **Entstehung der ersten Sterne** (auch einzelne Aspekte, z.B. chemische und thermodynamische Entwicklung, SN-feedback) (Bromm et al., 2009; Abel et al., 2002; Glover, 2005; Greif, 2014)
- **Kosmische Hintergrundstrahlung (CMBR): Entstehung, Fluktuationen** (Weinberg, 2008; Kolb & Turner, 1994; Schneider, 2006; Durrer, 2008)
- **Entstehung der ersten Elemente: Big-Bang-Nukleosynthese** (Weinberg, 2008; Kolb & Turner, 1994)
- **Supernovae–Dunkle-Energie Projekte** (The Supernova Cosmology Project, High-Z SN search Team: Perlmutter, 2003; Perlmutter & Schmidt, 2003; Perlmutter, 2005; Riess, 2000)
- **Erkenntnisse von *Dark Energy Spectroscopic Instrument (DESI)*** (DESI Collaboration, 2024; DESI Collaboration, 2024)
- **Inter-/Extragalaktische Magnetfelder**(Neronov & Semikoz, 2009; Neronov & Vovk, 2010; Tavecchio et al., 2010; Taylor et al., 2011)
- **Ergebnisse der GAIA Mission** (z.B. Lindegren et al., 2016; Gaia Collaboration et al., 2016)
- **Event Horizon Telescope (EHT): Beobachtung Schwarzer Löcher** (EHT Web page, 2022; Event Horizon Telescope Collaboration, 2019, 2022)
- **Direkter Nachweis von Gravitationswellen** (Abbott et al., 2016a,b; Sathyaprakash & Schutz, 2009)
- **Gravitationswellen Teleskope: LIGO, eLISA, Einstein Teleskop**
- **Pulsar Timing Arrays: Gravitationswellen im nano-Hertz Bereich** (Mingarelli et al., 2026)

- **Gammblitze, *Gamma Ray Bursts*** (Janka, 2011; Janka et al., 2011)
- **Fast Radio Bursts** (z.B. Keane, 2018; Pen, 2018; Platts et al., 2018)
- **Astroseismologie** (Aerts et al., 2010; Di Mauro, 2017)

## References

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