

Siyi Feng



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Xiamen University (Haiyun Campus)
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EDUCATION

Doctor of Natural Sciences

Sep. 2011-Feb. 2015

Universität Heidelberg & Max-Planck-Institut für Astronomie, Heidelberg, Germany

•Major: Physics & Astronomy

Thesis for degree: Chemical and dynamic sub-structures of the high-mass star-forming regions (HMSFRs)

Master of Science in Astrophysics

Sep. 2008-Jun. 2011

Nanjing University, Jiangsu, China

•Major: Astrophysics

Thesis for degree: Study on the Gamma-Ray Burst (GRB) in Fermi Era

Bachelor of Science in Astronomy

Sep. 2004-Jun. 2008

Nanjing University, Jiangsu, China

•Major: Astrophysics

Thesis for degree: Late Internal Shock Model for the X-ray Flares of the GRB Afterglow

RESEARCH INTEREST

- Star & Planet Formation
- Astrochemistry
- Radio Astronomy

APPOINTMENTS

Xiamen University (CN)

Oct. 2021-Present

-Associate Professor (Nanqiang B) @Department of Astronomy

East Asian Core Observatories Association

Dec. 2017-Sep. 2021

-East Asian Core Observatories Association (EACOA) postdoc fellow @NAOJ, NAOC, ASIAA

• Lead the **Multiwavelength line-Imaging survey of the 70 μ m-dArk and bright cLOUDs (MIAO)** project. This project carries high-spatial-resolution line-imaging survey towards a sample of 25 high-mass star forming regions. Each region contains a pair of neighbouring 70 μ m dark/bright clumps, serving as space laboratory for comparative chemical and kinematic study. In particular, the 70 μ m dark clump has $L/M < 1 L_{\odot}/M_{\odot}$. Using JVLA-GBT, IRAM-30 m (120 h, completed, *Feng et al. 2019a, Feng et al. 2020b*), ALMA (90 h, 90% completed), this survey was carried out at 1.3 cm, 3 mm and 1 mm wavelengths, allowing us to characterise the physio-chemical properties of the initial conditions of low-mass and high-mass star formation.

• Lead the multi-scale (1 pc down to 1000 AU) kinematic and chemical study (1 mm/3 mm, NOEMA-IRAM 30 m, SMA-IRAM 30 m) of the high-mass disk candidates NGC 7538 IRS9 (*two 1st-author paper, in prep.*);

• Lead the **effect of infrared bright rim bubble (TIME)** line-imaging survey (1mm/3mm, Nobeyama-45 m, IRAM-30 m, Effelsberg-100 m, ALMA) towards the infrared bright rim bubble N2, in understanding the effect of the expanding HII in star formation (*one 1st-author paper, in prep.*);

• Sub-group leader of ALMA large project **Fifty AU Study of the chemistry in the disk/envelope system of Solar-like protostars (FAUST)** on the chemistry of low-mass disk candidate GSS30 (*one 1st-author paper, in prep.*);

-Hosts: Dr. K. Tatsumatsu (2018 in NAOJ); Dr. D. Li (2019 in NAOC); Dr. S. Liu (2020–2022 in ASIAA)

Max-Planck-Institute for Extraterrestrial Physics (DE)

Mar. 2015-Nov. 2017

-European Research Council (ERC) postdoc fellow @The Center for Astrochemical Studies

• Lead the high spatial resolution line-imaging survey (1mm/2mm/3mm/1.3 cm, NOEMA, SMA, IRAM-30 m, VLA) of sulfur (S-)bearing species and carbon-chains towards the low-mass shocked region L1157-B1 (*Feng et al. 2020a, and two 1st-author paper, in prep.*);

-Director: Prof. Dr. Paola Caselli

Harvard-Smithsonian Center for Astrophysics (US)

Dec. 2013-Feb. 2014

-Visiting Scholar

- Lead the high spatial resolution line-imaging survey (1mm/3mm, IRAM-30 m-SMA) towards four IRDCs, conclude that the initial fragmentation is an non-thermal, non-quiescent process (*Feng et al. 2016c*);
- Detect two bipolar, high-velocity (up to 40 km s^{-1}) outflows (NOEMA) towards a “classic high-mass starless core”, conclude that star formation has already begun in this $> 40M_{\odot}$, $< 10L_{\odot}$ region (*Feng et al. 2016b*). **This work has been cited by a graduated-level astrochemistry textbook “Dynamical Astrochemistry” (ISBN-13: 978-1782627760; ISBN-10: 1782627766).**

-Host and collaborator: Dr. Qizhou Zhang

Max Planck Institute for Astronomy (DE)

Sep. 2011-Feb. 2015

-Marie Curie Early Stage Researcher (ESR/PhD) @Planet and Star Formation Group

- Study the chemical structure of the high-mass star-forming regions NGC 7538 S and IRS1 by comparing observations (NOEMA) with gas-grain model fittings, conclude that the fragmentation is hierarchic and that chemical history of the cores collapsed from the same natal cloud is asynchronized (*Feng et al. 2016a*);
- Study the chemical substructure of the nearest high-mass star-forming region Orion-KL (SMA-IRAM 30 m), conclude that the different spatial distributions of the complex organics indicate their different gas-grain forming paths (*Feng et al. 2015*). **This work has been cited by a graduated-level textbook “Molecular Astrophysics” (ISBN-13: 978-1107169289; ISBN-10: 1107169283).**

-Advisor: Prof. Dr. Henrik Beuther

Nanjing University (CN)

Sep. 2008-Jun. 2011

-Graduated Research Assistant @High Energy Group

- Construct a model of “structured ejecta sweeping up the density-jump medium” to the Gamma-Ray Burst (GRB), which well explains both the flares / bumps on the late afterglows at lower-energy band and the early steep-rising of GeV lightcurve observed by Fermi/ LAT, suggesting the external origin of the GeV photons (*Feng et al. 2011*);
- Simulate the polarization evolution in a relativistic wind bubble, which fits the observed GRB data.

-Advisor: Prof. Zigao Dai

University of Sheffield (UK)

Jul.-Aug. 2007

-Summer Student Researcher @Department of Applied Mathematics

- Revise the models for solar internal f/p/g-modes, including the combined effects from the changes of atmospheric magnetic field, temperature and steady state during a solar cycle (*the Best Oral Presentation*);

-Advisor: Prof. Róbert von Fáty-Siebenbürgen

Nanjing University (CN)

Sep. 2007-Sep. 2008

-Undergraduate Advanced Project Student Researcher @Department of Astronomy

- Built numerical codes for the dynamic and radiation processes of the “late internal shock” phenomenon towards to GRB, which fits well with the observation of X-ray flares (*Excellent Thesis for the Bachelor Degree*).

-Advisor: Prof. Zigao Dai

SELECTED OBSERVING PROPOSALS**Accepted proposals**

- **PI, 9.0 h (12 m)+47.0 h (ACA), ALMA #2019.1.00733.S:**

The initial gas flow towards extremely young high-mass clumps

- **PI, 3.5 h (12 m)+18.1 h (ACA), ALMA #2019.1.00408.S:**

The sequential star formation towards the IR bright rim of an HII bubble

- **PI, 11.4 h (12 m)+90.4 h (ACA), ALMA #2018.1.00101.S:**

The initial gas flow towards extremely young high-mass clumps

- **PI, 4.4 h (12 m)+20.6 h (ACA), ALMA #2018.1.00215.S:**

The sequential star formation towards the IR bright rim of an HII bubble

- **PI, 5.8 h (12 m)+5.6 h (ACA), ALMA #2018.1.00375.S:**

Sulfur chemistry in the transition zone of low-mass protoplanetary systems

- **PI, 30 h, JVLA #18A-067:**

Temperature and density structure of high mass, low luminosity/mass ratio clumps

- **PI, 18 h, JVLA #18A-068:**

Detailed physical structure of the protostellar shock region L1157-B1

- **PI, 83 h (30 m), IRAM #115-17:**

Initial star-forming activities towards the high-mass, low luminosity-to-mass ratio clumps

- **PI, 40 h, Nobeyama-45 m #CG171006:**

Initial star-forming activities towards the high-mass, low luminosity/mass ratio clumps

- **PI, 25.9 h (30 m), IRAM #009-17:**

String the beads: Sequential physical and chemical properties of the molecular clumps along the rim of an infrared bubble

- **PI, 37 h (30 m), IRAM #017-17:**
Deuterated organics in the earliest phase of high-mass star formation
- **PI, 44 h (30 m), IRAM #024-17:**
Sulfur chemistry in the shocked region L1157-B1 & B2
- **PI, 9 h, APEX #M9505b-99:**
Deuterated formaldehyde in the earliest phase of high-mass star formation
- **PI, 20 h, Effelsberg-100 m #105-16:**
Temperature and density structure of the infrared (IR) bubble rim N2
- **PI, 28 h, SMA #2016B-S029:**
Sulfur and organic chemistry in the shocked region L1157-B1 and B2
- **PI, 16 h (NOEMA)+ 1 h (30 m), IRAM #W16AF & 204-16:**
The main reservoir of sulfur on dust grains in the shocked region L1157-B1
- **PI, 15.4 h (30 m), IRAM #036-16:**
Deuteration in the earliest phase of high-mass star formation
- **PI, 32 h (NOEMA), IRAM #W14AB:**
Dynamics and chemistry in the earliest phase of high-mass star formation
- **PI, 13 h (30 m), IRAM #036-14:**
Chemistry in the earliest phase of high-mass star formation: SMA & 30m in concert
- **PI, 20 h, SMA #2013A-S011:**
Fragmentation and dynamical collapse of high-mass starless gas clumps
- **PI, 2 h (30 m), IRAM #033-12:**
The chemical substructure of Orion-KL: SMA & 30 m in concert
- **Co-I, 25 h (30 m), IRAM #121-20:**
Filamentary accretion flows in high-mass star-forming molecular clouds (PI: H. Beuther, MPIA)
- **Co-I, 64 h (NOEMA)+32.5 h (30 m), IRAM #W20AV & 190-20:**
CORE+: Deuterium and shock chemistry in high-mass star-forming regions (PI: C. Gieser, MPIA)
- **Co-I, 8 h (NOEMA), IRAM #W20BB:**
Investigating the deuterium fraction in the diffuse and translucent clouds through sensitive absorption observations (PI: G. Luo, NJU)
- **Co-I, 520 h (band3), JCMT #M20AL021:**
ALOHA IRDCs: A Lei Of the Habitat and Assembly of Infrared Dark Clouds (PI: D. Li, NAOC)
- **Co-I, 84 h (band3), JCMT #M20AP020:**
Dust distribution and chemical segregation in the L1157 molecular outflow (PI: H. Liu, ASIAA)
- **Co-I, 10.7 h (30 m), IRAM #143-19:**
Linking density structures and fragmentation in high-mass star formation (PI: H. Beuther, MPIA)
- **Co-I, 16.3 h, ALMA #2019.1.00280:**
First detection of magnetic fields in the very central regions of starless dense cores (PI: T. Liu, KASI)
- **Co-I (the 3rd), 15 h (NOEMA)+13 h (30 m), IRAM #S19-AL & 100-19:**
Kinematic and chemical signatures during high-mass cloud and star formation (PI: H. Beuther, MPIA)
- **Co-I, 32 h (band2), JCMT #M18BP002:**
Are supercritical filaments supported by magnetic fields? (PI: X. Lu, KASI)
- **Co-I, 28 h (band2), JCMT #M18BP041:**
Role of magnetic fields in dense core formation in filamentary clouds- II (PI: A. Soam, KASI)
- **Co-I, 19 h (band2), JCMT #M18BP055:**
Mapping Magnetic Fields in the Filamentary Cloud NGC 7538 (PI: H. Chen, NTHU)
- **Co-I, 106.2 h, ALMA #2018.1.01205.L:**
Fifty AU Study of the chemistry in the disk/envelope system of Solar-like protostars (PI: S. Yamamoto, UT)
- **Co-I, 15.7 h, ALMA #2018.1.01449.S:**
Magnetic fields from infrared dark clouds to hot molecular cores (PI: H. Beuther, MPIA)
- **Co-I (the 1st), 8 h (NOEMA), IRAM #S18-AN:**
Linking large and small scales for two high-mass protostars in NGC7538 (PI: J. Mottran, MPIA)
- **Co-I (the 1st), 37 h (NOEMA)+21 h (30 m), IRAM #S18-AO, W18-AX, & 222-18, 104-18:**
Chemical layers of the high-mass disk candidate NGC7538 IRS9 (PI: Y. Wang, MPIA)
- **Co-I, 53 h (30 m), IRAM #035-18:**
Early phases of high-mass star formation: kinematics and chemistry in different environments (PI: S. Zhang, OAMP/LAM)
- **Co-I, 48 h, SMA #2018B-A004:**
Internal structures of high-mass starless clumps in different environments (PI: J. Yuang, NAOC)
- **Co-I, 21 h, JVL A #18A-422:**
Outflow feedback in early stages of clustered star formation (PI: K. Wang, ESO)
- **Co-I, 7.8 h (12 m)+7.4 h (ACA), ALMA #2018.1.00302.S:**
Fragmentation and substructure of dense cores close to the onset of star formation in the Orion complex (PI: T. Liu, KASI)
- **Co-I, 8.5 h (12 m), ALMA #2017.1.00526.S:**
Where and when do low-mass stars form in high-mass protoclusters? (PI: X. Lu, NAOJ)
- **Co-I, 9 h (12 m)+77.6 h (ACA), ALMA #2017.1.00687.S:**
From filaments to cores: Dynamics in infrared dark clouds (PI: A. Barnes, MPE)
- **Co-I, 7.8 h (12 m)+27.9 h (ACA), ALMA #2017.1.00523.S:**
Gas accretion onto dense cores from early to late evolutionary phases of massive filamentary clouds (PI: X. Lu,

NAOJ)

- **Co-I, 11.7 h (ACA), ALMA #2016.2.00058.S:**

Physical and chemical properties of cold Orion cores very close to the onset of star formation (PI: K. Tatematsu, NAOJ)

- **Co-I (the 1st), 24 h, Nobeyama-45 m #CG161011:**

Star formation on the rim of the infrared (IR) bubble N2 (PI: Y. Ao, NAOJ)

- **Co-I, 25 h, VLA #16B-259:**

Grain growth in the star-forming cluster rho Oph A (PI: A. Coutens, UCL)

- **Co-I, 41 h, IRAM-30 m #012-16:**

Measuring isotopic ratios in Galactic massive star forming regions with HC3N lines (PI: J. Wang, SHAO)

- **Co-I, 9.6 h, ALMA #2015.1.00492.S:**

Magnetic field structure at the onset of high-mass star (PI: H. Beuther, MPIA)

- **Co-I, 618 h, ESO public survey:**

Probing the Early Stages of Star Formation: Unravelling the Structure of Planck Cold Clumps Distributed Throughout the Sky (PI: K. Wang, ESO)

- **Co-I, 4 h, VLA #15A-115:**

Disk and jet formation around the 30Msun protostar NGC7538IRS1 (PI: H. Beuther, MPIA)

- **Co-I, 299 h (NOEMA)+8 h (30 m), IRAM large programme #L14AB & 247-13:**

Fragmentation and disk formation during high-mass star formation (PI: H. Beuther, MPIA)

- **Co-I, 16 h (NOEMA)+2.5 h (30 m), IRAM large programme #W06E & 230-12:**

Small-scale fragmentation of genuine high-mass starless cores (HMSCs) (PI: H. Beuther, MPIA)

CONFERENCE CONTRIBUTIONS

- **Travel through time and space**

-Invited Public Talk for Xiamen University Malaysia Campus

(Nov, 2021)

- **MIAO: how to draw the profile of initial star-forming regions**

-Talk for JingGuangXia workshop, Xiamen, China

(Dec., 2020)

-Invited Talk for NAOJ ALMA-J seminar, Mitaka, Japan

(Jan., 2021)

- **What can chemistry tell us about the initial conditions and feedbacks of star-formation**

-Talk on PSF coffee, Heidelberg, Germany

(Oct., 2019)

-Talk on Nanjing University Seminar, Nanjing, China

(Sep., 2019)

-Talk for ISM workshop, Xinjiang, China

(Jul., 2019)

-Talk for NAOJ seminar, Mitaka, Japan

(Jun., 2019)

- **Astrochemistry tool: from the star formation to the cradle of life**

-Talk for UCL seminar, London, UK

(Jul., 2018)

-Invited Talk for EAO seminar, Hilo, USA

(May., 2018)

-Talk during visit ASIAA, Taipei

(Mar., 2017)

-Invited Talk during visit SJTU, ZJU, NJU, in China

(May-Oct., 2020)

- **Star-forming activities towards extremely cold, young, high-mass star-forming regions**

-Talk on the "Tracing the flow", Windermere, UK

(Jul., 2018)

- **Sequential physical and chemical properties of the molecular clumps along the rim of an infrared bubble**

-Poster on the "ALMA/Nobeyama/ASTE workshop", Mitaka

(Dec., 2017)

- **Deuteration in the earliest phase of high-mass star formation**

-Talk on the "Workshop on interstellar matter 2018", Sapporo

(Nov., 2018)

-Talk on the "MPIA star formation coffee", Heidelberg

(Jul., 2017)

- **G28.34S, a prestellar or protostellar object?**

-Talk on the "EA-ALMA 2017 meeting", Taipei

(Mar., 2017)

- **Outflow detection in a 70 micron dark high-mass core**

-Talk on the "European Week of Astronomy and Space Science 2016", Athens

(Jul., 2016)

- **Chemistry and kinematics in high-mass star-forming regions**

-Invited Talk during visit NJU, NAOC, KIAA, SAO, China

(Jan, 2016)

- **Are the Infrared Dark Clouds Really Quiescent?**

-Poster on the "From clouds to protoplanetary disks: the astrochemical link", Berlin

(Oct., 2015)

-Poster on the "Soul of High-Mass Star Formation", Puerto Varas, Chile

(Mar., 2015)

- **Complex Organic Molecules in Hot Molecule Cores**

-Talk on the "Complex Organic Molecules in Space", Pisa

(Mar., 2016)

-Invited Talk on the "Chemical diagnostics of star and planet formation with Cycle 3 ALMA", MPE

(Jan., 2015)

- **Chemical Substructure in High-mass Star-forming Regions**

-Talk on the "Soul of High-Mass Star Formation", Puerto Varas, Chile

(Mar., 2015)

-Joint colloquium of MPIA and LSW Talk, MPIA

(Dec., 2014)

-Radio and Geoastrophysics Lunch Talk, Harvard-Smithsonian Center for Astrophysics

(Feb., 2014)

-Talk on the "Plane & Star Formation Seminar", MPIA

(Dec., 2013)

- **Inferring the Evolutionary Stages of NGC 7538S and NGC 7538 IRS1 from Chemistry**
- Talk on "Chemical Diagnostics in the ALMA/NOEMA Era", Heidelberg (Jul., 2014)
- Talk on "The Star Formation: Data, Models and Visualization–Harvard-Heidelberg Workshop" (Jun., 2014)
- Poster on "The Early Phase of Star Formation", Ringberg Castle, Germany (Jun., 2014)
- Talk on the 223rd American Astronomical Society Meeting, Washington DC, USA (Jan., 2014)
- Talk on the 17th Annual German Conference of Women in Physics (Nov., 2013)
- Talk on Conference of "Astrochemistry in the ALMA era", Copenhagen (Jan., 2013)
- Poster on "High-Mass Star Formation, From Large to Small Scales in the Era of Herschel & ALMA", Lorentz Center, Leiden (Jan., 2013)
- **Resolving the Chemical Substructure of Orion-KL**
- Poster on "Protostar & Planet VI", Heidelberg (Jul., 2013)
- Poster on Conference of "Astrochemistry in the ALMA era", Copenhagen (Jan., 2013)
- Talk on "2012 MPIA Students Workshop", Bar-sur-Seine (Mar., 2012)
- **Statistical Characteristics of Interstellar Turbulence,**
- Talk on the 7th Generation IMPRS Seminar (Jan., 2012)
- **Chemical sub-structure of high-mass star-forming regions,**
- Poster on Young Astronomers' Meeting (YAM) , at Observatoire de Paris (Nov., 2011)
- **Multiband Fitting to 3 Long GRBs with Fermi/LAT Data: Structured Ejecta Sweeping up a Density-Jump Medium**
- Talk on "Mini Workshop for the Frontier of GRB Research", Nanjing University (Nov., 2010)
- **Analytical Results Modeling for the Differential Rotation Neutron Star,**
- Talk on "2010 Compact Star Summer School", at Nanjing University, (Jun., 2010)
- **The Analytical and Numerical Results of the Gamma-Ray Burst (GRB) Afterglows,**
- Talk on "Work Summary for the Qualify of Graduate Research", at Nanjing University (Dec., 2009)
- **9 Talks on "Colloquium on the Gamma-ray Afterglows in the Fermi Era", Nanjing University**
<http://www.mpe.mpg.de/homes/syfeng/ResearNJU.html> (Feb.2009-Jun.2010)

SKILLS

Language

Chinese (Mandarin): Mother Language
 English: Professional
 German: Beginner
 Japanese: Beginner

Technology and Computer

Package (MIRIAD, IDL, GILDAS, CASA)
 Coding (C, F90, Matlab, Mathematica, Python, LaTeX)
 Digital graphic and database development
 Web-site development

AWARDS/FELLOWSHIP

2017-2020: East Asian Core Observatories Association (EACOA) fellow
 2017-2020: NAOJ-ALMA fellow (declined)
 2015-2017: MPE European Research Council (ERC) postdoc fellow
 2011-2014: Marie Curie Seventh Framework Program Early Stage Researcher (ESR/PhD)
 2010: Outstanding Contribution To Chinese Astronomical Society Award
 2008: Graduate with the Highest Honor (top 5%) of Nanjing University
 2008: Excellent Bachelor Thesis of Nanjing University
 2005-2008: Undergraduate Student's Outstanding Contribution to Astronomy Outreach Award
 2005-2008: People's Scholarship for Excellence in Undergraduate Study
 2006: Outstanding Undergraduate Student Association President in Jiangsu Province of China

TEACHING & SERVICE

2021–: Referee for Elsevier
 2020–: TAC of James Clerk Maxwell Telescope
 2021/2022 (expected): LOC of "Soul of High-Mass Star Formation" (international conference every 4 years)
 2021/2022 (expected): LOC of "The 2020 East-Asian Young Astronomer Meeting" @Beijing, China
 2014.6: LOC of "The Star Formation: Data, Models and Visualization–Harvard-Heidelberg Workshop"
 2014.6: LOC of "The Early Phase of Star formation" (EPoS) @Muenchen, Germany
 2013.7: LOC of "Protostar & Planets VI" (PPVI) @Heidelberg, Germany
 2012.3-4: Teaching assistant on the "Shack-Hartmann Wavefront Sensor" @ Heidelberg University & MPIA
 2011-2015: Guide tours for the planetarium @ Haus de Astronomie, Heidelberg
 2008.7: LOC of 2009 "CAS-IAU Joint Solar Eclipse Meeting" @Suzhou, China
 2008.7: LOC of 2008 "Gamma-Ray Burst Conference" @Nanjing, China

List of Publications

REFEREED PAPERS

• As the first author:

- (8) **Feng, S.**, Li, D., Caselli, P., Du, F., Lin, Y., Sipilä, O., Beuther, H., Sanhueza, Patricio, Tatematsu, K., Liu, S. Y., Zhang, Q., Wang, Y., Hogge, T., Jimenez-Serra, I., Lu, X., Liu, T., Wang, K., Zhang, Z. Y., Zahorecz, S., Li, G., Liu, H. B., Yuan, J. "The Chemical Structure of Young High-mass Star-forming Clumps. II. Parsec-scale CO Depletion and Deuterium Fraction of HCO^+ ", 2020, ApJ, 901, 145. doi:10.3847/1538-4357/abada3
- (7) **Feng, S.**, Codella, Codella, C., Ceccarelli, C., Caselli, P., Lopez-Sepulcre, A., Neri, R., Fontani, F., Podio, L., Lefloch, B., Liu, H. B., Bachiller, R., Viti, S. "Chemical segregation of SO and SO_2 in the bow shock region L1157-B1 and B2", 2020, ApJ, 896, 37. doi:10.3847/1538-4357/ab8813
- (6) **Feng, S.**, Caselli, P., Wang, K., Lin, Y., Beuther, H., Sipilä, O., "The chemical structure of young high-mass star-forming clumps: (I) Deuteration", 2019, ApJ, 883, 202. doi:10.3847/1538-4357/ab3a42
- (5) **Feng, S.**, Beuther, H., Semenov, D., Henning, Th., Linz, H., Mills, E. A. C., Teague, R., "Inferring the evolutionary stages of the internal structures of NGC 7538 S and IRS1 from chemistry", 2016, A&A, 593, A46. doi:10.1051/0004-6361/201424912
- (4) **Feng, S.**, Beuther, H., Zhang, Q., Liu, H. B., Zhang, Z., Wang, K., Qiu, K., "Outflow detection in a $70 \mu\text{m}$ dark high-mass core", 2016, ApJ, 828, 100. doi:10.3847/0004-637X/828/2/100
- (3) **Feng, S.**, Beuther, H., Zhang, Q., Henning, T., Linz, H., Ragan, S., Smith, R., "Are infrared dark clouds really quiescent?", 2016, A&A, 592, A21. doi:10.1051/0004-6361/201526864
- (2) **Feng, S.**, Beuther, H., Henning, T., Semenov, D., Palau, A., Mills, E. A. C., "Resolving the chemical substructure of Orion-KL", 2015, A&A, 581, A71. doi:10.1051/0004-6361/201322725
- (1) **Feng, S.-Y.**, Dai, Z.-G., "Multiband fitting to three long GRBs with Fermi/LAT data: structured ejecta sweeping up a density-jump medium", 2011, RAA, 11, 1046. doi:10.1088/1674-4527/11/9/004

• As co-supervisor:

- (3) Luo, Gan, **Feng, Siyi**, Li, Di, Qin, Sheng-Li, Peng, Yaping, Tang, Ningyu, Ren, Zhiyuan, Shi, Hui "Sulfur chemistry in the Orion-KL", 2019, ApJ, 885, 82. doi:10.3847/1538-4357/ab45ef
- (2) Peng, Yaping, Qin, Sheng-Li, Schilke, Peter, Sánchez-Monge, Álvaro, Wu, Yuefang, Liu, Tie, Li, Di, Möller, Thomas, Liu, Sheng-Yuan, **Feng, Siyi**, Liu, Ying, Luo, Gan, Zhang, Li, Rong, Jia-Lei, "ALMA Observations of Vibrationally Excited HC_3N Lines Toward Orion KL", 2017, ApJ, 837, 49. doi:10.3847/1538-4357/aa5c81
- (1) Punanova, A. Caselli, P. **Feng, S.**+41 "Seeds of Life in Space (SOLIS). III. Zooming Into the Methanol Peak of the Prestellar Core L1544", 2018, ApJ, 855, 112. doi:10.3847/1538-4357/aaad09

• As co-author:

- (26) Tatematsu, K. +18+ **Feng, S.**+20, "Molecular Cloud Cores with High Deuterium Fractions: Nobeyama Mapping Survey ", 2021, ApJS, 256, 25. doi:10.3847/1538-4365/ac0978
- (25) Morii, K., +7+ **Feng, S.**+11, "The ALMA Survey of $70 \mu\text{m}$ Dark High-mass Clumps in Early Stages (ASHES). IV. Star formation signatures in G023.477 ", 2021, arXiv, arXiv:2109.01231
- (24) Li S., +8+ **Feng, S.**+16, "A Low-mass Cold and Quiescent Core Population in a Massive Star Protocluster", 2021, ApJL, 912, L7. doi:10.3847/2041-8213/abf64f
- (23) Barnes A. T., +10+ **Feng, S.**+6, "ALMA-IRDC: dense gas mass distribution from cloud to core scales ", 2021, MNRAS, 503, 4601. doi:10.1093/mnras/stab803

- (22) Gieser C., +10+ **Feng, S.**+21, "Physical and chemical structure of high-mass star-forming regions. Unraveling chemical complexity with CORE: the NOEMA large program ", 2021, A&A, 648, A66. doi:10.1051/0004-6361/202039670
- (24) Lu X., +5+ **Feng, S.**+7, "ALMA Observations of Massive Clouds in the Central Molecular Zone: Ubiquitous Protostellar Outflows", 2021, ApJ, 909, 177. doi:10.3847/1538-4357/abde3c
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Last update: Nov. 22 2021