

CURRICULUM VITAE

DR. HAIYU BAOBAB LIU

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Research Interests, with Selected Publications of Myself and My Students

Episodic (proto)stellar accretion, jet eruption, and planet formation ([Liu+14](#), [Liu+16a](#), [Liu+16b](#), [Liu+17b](#), [Liu+17c](#))

Molecular cloud global evolution and the formation of extreme star clusters ([Liu+12b](#), [Liu+15](#), [Liu+17](#))

Accretion flows around Sgr A* ([Liu+12c](#), [Liu+16d](#), [Liu+16e](#))

Interstellar Magnetic Field ([Liu+13](#), [Liu+16c](#), [Liu+18b](#))

Positions

Time	Institution	Position	Duty station
2018 Oct.–...	Academia Sinica Institute of Astronomy and Astrophysics (ASIAA)	Assistant research fellow (tenure-tracked)	Taipei, Taiwan
2015 Oct.–2018 Oct.	European Southern Observatory (ESO)	ESO Fellow	Garching, GE
2012 – 2015	ASIAA	Postdoctoral Research Fellow / ALMA-T ARC Member	Taipei, Taiwan

Education

Time	Position	Institution
2009 – 2012	Predocctoral Fellow	Havard-Smithsonian Center for Astrophysics (SAO CfA), Cambridge, USA
2007 – 2012	Ph.D. Student	Department of Physics, National Taiwan University (NTU), Taipei, Taiwan
2005 – 2007	Master Student	Department of Astrophysics, National Taiwan University (NTU), Taipei, Taiwan
2001 – 2005	B.A. Student	Department of Physics, National Taiwan University (NTU), Taipei, Taiwan

Awards

2018	Academia Sinica Initial Employment Academic Research Grants
2015	Highest performance substitute military service of Taiwan (1st place of the 12 awards selected from the entire country)
2015	ESO Fellow at Garching

Further Professional Experience

- 2020 – SMA-ASIAA TAC chair
- 2017 ESO-Garching fellow selection committee
- 2017 Guest lecturer, UNAM, Mexico
- 2016 – 2017 SMA dual RX full polarization observations with SWARM correlator commissioning
- 2016 – 2016 ALMA AoD operation and Band 5 commissioning ([Messenger-no167, pg 7-10](#))
- 2014 Guest lecturer, Chinese University of Hong Kong
- 2014 – 2018 ALMA QA2 data reduction
- 2011 – 2012 Residence in Socorro for shared risk observing (RSRO) during the EVLA commissioning (4 months in total)
- 2010 – 2011 Commissioning SMA dual RX polarization
- 2009 Sep. SMA on-site day-time observer (3 weeks, with Dr. Daniel Espada)

Refereeing Duties

- ApJ, ApJL, A&A, PASJ

First Detections

- Anomalously low dust (sub)millimeter spectral index in protoplanetary disks due to scattering ([Liu+19b](#), [Liu+19c](#))
- Linear polarization of Sgr A* at 500 GHz ([Liu+16d](#)) and 700 GHz ([Liu+16e](#)) with ALMA
- Linearly polarized dust emission at 18-48 GHz with JVLA ([Liu+16c](#), [Liu+18b](#), [Ko+20](#))

Journal Publications up to March 09, 2021 (116 records in total)*Refereed articles (23 first author papers, 18 2nd author papers out of 112 journal publications)***First author papers**

- 19-3 **Liu, H. B.**, Mérand, A., Green, J. D., Pérez, S., Hales, A. S., Yang, Y.-L., Dunham, M. M., Hasegawa, Y., Henning, T., Galván-Madrid, R., Kóspál, Á., Takami, M., Vorobyov, E. I., Zhu, Z., "Diagnosing 0.1-10 au scale morphology of the FU Ori disk using ALMA and VLTI/GRAVITY", *ApJ*, 884, 97 (2019) [[ADS](#)]
- 19-2 **Liu, H. B.**, "The anomalously low (sub)millimeter spectral indices of some protoplanetary disks may be explained by dust self-scattering", *ApJL*, 877, 22 (2019) [[ADS](#)]
- 19-1 **Liu, H. B.**, Chen, H.-R. V., Román-Zúñiga, C. G., Galván-Madrid, R., Ginsburg, A., Ho, P. T.-P., Minh, Y.-C., Zhang, Q., "Investigating fragmentation of gas structures in OB cluster-forming molecular clump G33.92+0.11 with 1000 au resolution observations of ALMA", *ApJ*, 871, 185 (2019) [[ADS](#)]
- 18-2 **Liu, H. B.**, Hasegawa, Y., Ching, T.-C., Lai, S.-P., "Detection of 40-48 GHz dust continuum linear polarization towards the Class 0 young stellar object IRAS 16293-2422", *A&A*, 617, 3 (2018) [[ADS](#)]
- 18-1 **Liu, H. B.**, Dunham, M. M., Pascucci, I., Bourke, T., Hirano, N., Longmore, S., Andrews, S., Carrasco-González, C., Forbrich, J., Galván-Madrid, R., Girart, G. M., Green, J. D., Juaréz, C., Kóspál, A., Manara, C. F., Palau, A., Takami, M., Vorobyov, E. I., *A&A*, 612, 54 (2018) [[ADS](#)]
- 17-2 **Liu, H. B.**, Vorobyov, E. I., Dong, R., Dunham, M. M., Takami, M., Galván-Madrid, R., Hashimoto, J., Kóspál, Á., Henning, T., Tamura, M., Rodríguez, L. F., Hirano, N., Hasegawa, Y., Testi, L., Fukagawa, M., Pyo, T.-S., Carrasco-Gonzalez, C., Tazzari, M., "A Concordant Scenario to Explain FU Ori Derived from the Millimeter Interferometric Observations", *A&A*, 602, 19 (2017) [[ADS](#)]
- 17-1 **Liu, H. B.**, "On the Interpretation of the Observations of Edge-On Gravitational Unstable Accretion Flows", *A&A*, 597, 70 (2017) [[ADS](#)]
- 16-5 **Liu, H. B.**, Wright, M. C. H., Zhao, J.-H., Brinkerink, C. D., Mills, E. A. C., Martín, S., Falcke, F., Ho, P. T. P., "Linearly Polarized Millimeter and Submillimeter Continuum Emission of Sgr A* Constrained by ALMA", *A&A*, 593, 107 (2016) [[ADS](#)]
- 16-4 **Liu, H. B.**, Wright, M. C. H., Zhao, J.-H., Mills, E. A. C., Requena-Torres, M. A., Matsushita, S., Martín, S., Ott, J., Morris, M. R., Longmore, S. "The 492 GHz Emission of Sgr A* Constrained by ALMA", *A&A*, 593, 44. (2016) [[ADS](#)]
- 16-3 **Liu, H. B.**, Lai, S.-P., Hasegawa, Y., Hirano, N., Rao, R., Li, I.-H., Fukagawa, M., Girart, J. M., Carrasco-González, C., Rodríguez, L. F., "Detection of Linearly Polarized 6.9 mm Continuum Emission From the Class 0 Young Stellar Object NGC1333 IRAS4A", *ApJ*, 821, 41 (2016) [[ADS](#)]
- 16-2 **Liu, H. B.**, Takami, M., Kudo, T., Hashimoto, J., Dong, R., Vorobyov, E. I., Pyo, T.-S., Fukagawa, M., Tamura, M., Henning, T., Dunham, M. M., Karr, J., Kusakabe, N., Tsuribe, T., "Circumstellar Disks of the Most Vigorously Accreting Young Stars", *Science Advances* e1500875 (2016) [[ADS](#)]
- 16-1 **Liu, H. B.**, Galván-Madrid, R., Dunham, M., Hirano, N., Henning, T., Hasegawa, Y., Dong, R., Takami, M., "Absence of Significant Cool Disks in Young Stellar Objects Exhibiting Repetitive Optical Outbursts", *ApJL*, 816, 29 (2016) [[ADS](#)]
- 15-1 **Liu, H. B.**, Galván-Madrid, R., Jiménez-Serra, I., Román-Zúñiga, C., Zhang, Q., Li, Z., Chen, H.-R., "ALMA resolves the spiraling accretion flow in the luminous OB cluster forming region G33.92+0.11", *ApJ*, 804, 37 (2015) [[ADS](#)]
- 14-1 **Liu, H. B.**, Galván-Madrid, R., Forbrich, Jan, Rodríguez, L. F., Takami, M., Costigan, G., Manara, C. F., Yan, C.-H., Karr, J., Chou, M.-Y., Ho, P. T. P., Zhang, Q., "Time Monitoring of Radio Jets and Magnetospheres in the Nearby Young Stellar Cluster R Coronae Australis", *ApJ*, 780, 155 (2014) [[ADS](#)]
- 13-2 **Liu, H. B.**, Qiu, K., Zhang, Q., Girart, J. M., Ho, P. T. P., "Gas kinematics and the Draggged Magnetic Field in the High-mass Molecular Outflow Source G192.16-3.84: An SMA View", *ApJ*, 771, 71 (2013) [[ADS](#)]
- 13-1 **Liu, H. B.**, Ho, P. T. P., Wright, M. C. H., Su, Y.-N., Hsieh, P.-Y., Sun, A.-L., Kim, S. S., Minh, Y. C., "Interstellar Medium Processing in the Inner 20 pc in Galactic Center", *ApJ*, 770, 44 (2013) [[ADS](#)]
- 12-3 **Liu, H. B.**, Hsieh, P.-Y., Ho, P. T. P., Su, Y.-N., Wright, M. C. H., Sun, A.-L., Minh, Y. C., "Milky Way Supermassive Black Hole: Dynamical Feeding from the Circumnuclear Environment", *ApJ*, 756, 195 (2012) [[ADS](#)]

- 12-2 **Liu, H. B.**, Jiménez-Serra, I., Ho, P. T. P., Chen, H.-R., Zhang, Q., Li, Z.-Y., "Fragmentation and OB Star Formations in High-Mass Molecular Hub-Filament Systems", *ApJ*, 756, 10 (2012) [[ADS](#)]
- 12-1 **Liu, H. B.**, Quintana-Lacaci, G., Wang, K., Ho, P. T. P., Li, Z.-Y., Zhang, Q., Zhang, Z.-Y., "The Origin of OB Clusters: From 10 pc to 0.1 pc", *ApJ*, 745, 61 (2012) [[ADS](#)]
- 11-1 **Liu, H. B.**, Zhang, Q., Ho, P. T. P., "An Overall Picture of the Gas Flow in a Massive Cluster-forming Region: The Case of G10.6-0.4", *ApJ*, 729, 100 (2011) [[ADS](#)]
- 10-2 **Liu, H. B.**, Ho, P. T. P., "The High-Velocity Molecular Outflows in Massive Cluster-forming Region G10.6-0.4", *ApJ*, 725, 2190 (2010) [[ADS](#)]
- 10-1 **Liu, H. B.**, Ho, P. T. P., Zhang, Q., Keto, E., Wu, J., & Li, H., "The Decrease of Specific Angular Momentum and the Hot Toroid Formation: The Massive Clump G10.6-0.4", *ApJ*, 722, 262 (2010) [[ADS](#)]
- 08-1 **Liu, H. B.**, Hsieh, B. C., Ho, P. T. P., Lin, L., & Yan, R., "A New Galaxy Group Finding Algorithm: Probability Friends-of-Friends", *ApJ*, 681, 1046 (2008) [[ADS](#)]

Co-authored papers

- **Publications as supervisor/advisor or initiator**

- 20-1 Ko, C.-L., **Liu, H. B.**, Lai, S.-P., Ching, T.-C., Rao, R., Girart, J.-M., "Resolving linear polarization due to emission and extinction of aligned dust grains on NGC1333 IRAS4A with JVL A and ALMA", *ApJ*, 889, 172 (2020) [[ADS](#)]
- 19-4 Juárez, C., **Liu, H. B.**, Girart, J. M., Palau, A., Busquet, G., Galván-Madrid, R., Hirano, N., Lin, Y., "Extreme fragmentation and converging flows at the center of the L1287 cloud", *A&A*, 621, 140 (2019) [[ADS](#)]
- 18-3 Monsch, K., Pineda, J. E., **Liu, H. B.**, Zucker, C., Chen, H. H.-H., Pattle, K., Offner, S. S. R., Di Francesco, J., Ginsburg, A., Ercolano, B., Arce, H. G., Friesen, R., Kirk, H., Caselli, P., Goodman, A. A., "Dense gas kinematics and a narrow filament in the Orion A OMC1 region using NH₃", *ApJ*, 861, 77 (2018) [[ADS](#)]
- 17-5 C. Juárez, Girart, G. M., Zamora-Avilés, M., Tang, Y.-W., Koch, P. M., **Liu, H. B.**, Palau, A., Ballesteros-Paredes, J., Zhang, Q., Qiu, K., "Magnetized Converging Flows Towards the Hot Core in the Intermediate/High Mass Star Forming Region NGC 6334 V", *ApJ*, 844, 44 (2017)[[ADS](#)]
- 17-4 Li, J. I.-H., **Liu, H. B.**, Hasegawa, Y., Hirano, N., "Millimeter and Submillimeter Spectral Energy Distributions of Class 0 Young Stellar Objects", *ApJ*, 840, 72 (2017) [[ADS](#)]
- 17-3 Lin, Y., **Liu, H. B.**, Li, D., Busquet, G., Zhang, Z., Ginsburg, A., Pineda, J., Lei, Q., Galván-Madrid, R., Mcleod, A. F., Rosolowsky, A., Dale, J. E., Immer, R., Koch, E., Longmore, S., Walker, D., Testi, L., "Cloud Structure of Three Galactic Infrared Dark Clouds from Combining Ground and Space Based Bolometric Observations", *ApJ*, 840, 22 (2017) [[ADS](#)]
- 16-7 Lin, Y., **Liu, H. B.**, Li, D., Zhang, Z., Ginsburg, A., Pineda, J., Lei, Q., Galván-Madrid, R., Mcleod, A. F., Rosolowsky, A., Dale, J. E., Immer, R., Koch, E., Longmore, S., Walker, D., Testi, L., "Deriving Density and Temperature Profiles of Galactic OB Cluster Forming Regions Combining the Ground and Space Based Bolometric Observations", *ApJ*, 828, 32 (2016) [[ADS](#)]
- 16-6 Yen, H.-W., **Liu, H. B.**, Gu, P.-G., Hirano, N., Lee, C.-F., Puspitaningrum, E., Takakuwa, S., "Gas Gaps in the Protoplanetary Disk around the Young Protostar HL Tau", *ApJL*, 820, 25 (2016) [[ADS](#)]

- **Other publications**

- 21-7 Díaz Trigo, M., Petry, D., Humphreys, E., Impellizzeri, V., **Liu, H. B.**, "A search for signatures of interactions of X-ray binary outflows with their environments with ALMA", *A&A* in press
- 21-6 Vorobyov, E. I., Elbakyan, V. G., **Liu, H. B.**, Takami, M., "Distinguishing between different mechanisms of FU-Orionis-type luminosity outbursts", *A&A*, 647, 44 (2021) [[ADS](#)]
- 21-5 Kanagawa, K. D., Hashimoto, J., Muto, T., Tsukagoshi, T., Takahashi, S., Hasegawa, Y., Konishi, M., Nomura, H., **Liu, H. B.**, Dong, D., Kataoka, A., Momose, M., Ono, T., Sitko, M., Takami, M., Tomida, K., "ALMA observation of the protoplanetary disk around WW Cha: faint double-peaked ring and asymmetric structure", *ApJ*, 909, 212 (2021) [[ADS](#)]

- 21-4 Palau, A., Zhang, Q., Girart, J. M., Liu, J., Rao, R., Koch, P. M., Estalella, R., Chen, H.-R. V., **Liu, H. B.**, Qiu, K., Li, Z.-Y., Zapata, L. A., Bontemps, S., Ching, T.-C., Shinnaga, H., "In search for an observational correlation between the fragmentation level and the magnetic field strength in massive dense cores", *ApJ* in press [ADS]
- 21-3 Hashimoto, J., Muto, T., Dong, R., **Liu, H. B.**, van der Marel, N., Francis, L., Hasegawa, Y., Tsukagoshi, T., "AALMA Observations of the Asymmetric Dust Disk around DM Tau", *ApJ* in press [ADS]
- 21-2 Law, C. J., Zhang, Q., Öberg, K., Galván-Madrid, R., Keto, E., **Liu, H. B.**, Ho, P. T. P., "Sub-arcsecond imaging of the complex organic chemistry in massive star-forming region G10.6-0.4", *ApJ*, 909, 214 (2021) [ADS]
- 21-1 Ohashi, S., Kobayashi, H., Nakatani, R., Okuzumi, S., Tanaka, H., Murakawa, K., Zhang, Y., **Liu, H. B.**, Sakai, N., "Ring formation by coagulation of dust aggregates in early phase of disk evolution around a protostar", *ApJ*, 907, 80 (2021) [ADS]
- 20-18 Vorobyov, E. I., Elbakyan, V. G., Takami, M., **Liu, H. B.**, "Effect of luminosity outbursts on protoplanetary disk dynamics", *A&A*, 643, 13 (2020) [ADS]
- 20-17 Wang, J.-W., Koch, P. M., Galván-Madrid, R., Lai, S.-P., **Liu, H. B.**, Lin, S.-J., Pattle, K., "Formation of the hub-filament system G33.92+0.11: Local interplay between gravity, velocity, and magnetic field", 905, 158 (2020) [ADS]
- 20-16 Añez-López, N., Busquet, G., Koch, P. M., Girart, J. M., **Liu, H. B.**, Santos, F., Chapman, N. L., Novak, G., Palau, A., Ho, P. T. P., Zhang, Q., "The role of the magnetic field in the fragmentation process: the case of G14.225-0.506", *A&A*, 644, 52 (2020) [ADS]
- 20-15 Feng, S., Li, D., Caselli, P., Du, F., Lin, Y., Sipilä, O., Beuther, H., Sanhueza, P., Tatematsu, K., Liu, S. Y., Zhang, Q., Wang, Y., Hogge, Y., Jimenez-Serra, I., Liu, 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⁺", *ApJ*, 901, 145 (2020) [ADS]
- 20-14 Takami, M., Beck, T. L., Schneider, C., Günter, H. M., White, M., Grankin, K., Karr, J. L., Ohyama, Y., Coffey, D., **Liu, H. B.**, Galván-Madrid, R., Liu, C.-F., Fukagawa, M., Manset, N., Chen, W.-P., Pyo, T.S., Shang, H., Ray, T. P., Otsuka, M., Chou, M.-Y., "Possible time correlation between jet ejection and mass accretion from RW Aur A*", *ApJ*, 901, 24 (2020) [ADS]
- 20-13 Beck, S. C., Lacy, J., Turner, J., **Liu, H. B.**, Greathouse, T., Consiglio, S. M., Ho, Paul T.-P., "Ionized gas in the NGC 5253 supernebula: high spatial and spectral resolution observations with the JVLA and TEXES", *MNRAS*, 497, 1675 (2020) [ADS]
- 20-12 Li, S., Zhang, Q., **Liu, H. B.**, Beuther, H., Palau, A., Girart, J. M., Smith, H., Hora, J. L., Lin, Y., Qiu, K., Strom, S., Wang, J., Li, F., Yue, N., "ALMA observations of NGC 6334 S - I: Forming massive stars and cluster in subsonic and transonic filamentary clouds", *ApJ*, 896, 110 (2020) [ADS]
- 20-11 Feng, S., Codella, C., Ceccarelli, C., Caselli, P., Lopez-Sepulcre, A., Neri, R., Fontani, F., Podio, L., Lefloch, B., **Liu, H. B.**, Bachiller, R., "Seeds of life in Space (SOLIS). IX. Chemical segregation of SO₂ and SO toward the low-mass protostellar shocked region of L1157", *ApJ*, 896, 37 (2020) [ADS]
- 20-10 Min, Y. C., **Liu, H. B.**, Chen, H.-R. V., "Chemical Diagnostics of the massive star cluster-forming cloud G33.92+0.11. IV. Hierarchical structure", *JKAS*, 53, 77 (2020) [ADS]
- 20-9 Liu, J., Zhang, Q., Qiu, K., **Liu, H. B.**, Girart, J. M., Li, Z.-Y., Pillai, T., Wang, K., "Magnetic fields in the early stages of massive star formation as revealed by ALMA", *ApJ*, 895, 142 (2020) [ADS]
- 20-8 De Simone, M., Ceccarelli, C., Codella, C., Svoboda, B. E., Chandler, C., Bouvier, M., Satoshi, Y., Sakai, N., Caselli, P., Favre, C., Loinard, L., Lefloch, B., **Liu, H. B.**, López-Sepulcre, A., Pineda, J. E., Taquet, V., Testi, L., "Hot corinos chemical diversity: myth or reality?", *ApJL*, 896, 3 (2020) [ADS]
- 20-7 Ginsburg, A., Anderson, L. D., Dicker, S., Romero, C., Svoboda, B., Devlin, M., Galván-Madrid, R., InDebetouw, R., **Liu, H. B.**, Mason, B., Miroczkowski, T., Aguirre, J., Armentrout, W. P., Bally, J., Brogan, C., Butterfield, N., Hunter, T. R., Reese, E. D., Rosolowsky, E., Sarazin, C., Shirley, Y., Stanchfield, S., Sievers, J., "The MUSTANG-2 Galactic Plane Survey (MGPS90) pilot", *ApJS*, 248, 24 (2020) [ADS]
- 20-6 Nakatani, R., **Liu, H. B.**, Ohashi, S., Zhang, Y., Hanawa, T., Chandler, C., Oya, Y., Sakai, N., "Substructure formation in a protostellar disk around an embedded protostar", *ApJL*, 895, 2 (2020) [ADS]
- 20-5 Sadaghiani, M., Sánchez-Monge, Á., Shilke, P., **Liu, H. B.**, Clarke, D., Zhang, Q., Girart, J. M., Seifried, D., Aghababaei, A., Li, H., Juárez, C., Tang, K. S., "Physical properties of the star-forming clusters in NGC 6334", *A&A*, 635, 2 (2020) [ADS]
- 20-4 Vorobyov, E. I., Skliarevskii, A. M., Elbakyan, V. G., Takami, Michihiro, **Liu, H. B.**, Liu, S.-Y., Akiyama, E., "The origin of tail-like structures around protoplanetary disks", *A&A*, 635, 196 (2020) [ADS]
- 20-3 Kim, S., Takahashi, S., Nomura, H., Tsukagoshi, T., Lee, S., Muto, T., Dong, R., Hasegawa, Y., Hashimoto, J., Kanagawa, K., Kataoka, A., Konishi, M., **Liu, H. B.**, Momose, M., Sitko, M., Tomida, K., "The detection of dust gap-ring structure in the outer region of the CR Cha protoplanetary disk", *ApJ*, 888, 72 (2020) [ADS]

- 20-2 Pérez, S., Hales, A., **Liu, H. B.**, Zhu, Z., Casassus, S., Williams, J., Zurlo, A., Cuello, N., Cieza, L., Principe, D., "Resolving the FU Ori system with ALMA: Co-planar twin disks?", *ApJ*, 889, 59 (2020) [[ADS](#)]
- 19-15 Takami, M., Chen, T.-S., Hirano, Naomi, **Liu, H. B.**, Kóspál, Á., Cruz-Sáenz de Miera, F., Abraham, P., Hsieh, T.-H., Trejo-Cruz, A., "An ALMA study of the FU-Ori type object V900 Mon: implications for the progenitor", *ApJ*, 884, 146 (2019) [[ADS](#)]
- 19-14 Coutens, A., **Liu, H. B.**, Jiménez-Serra, I., Bourke, T. L., Forbrich, J., Hoare, M., Loinard, L., Testi, L., Audard, M., Caselli, P., Chacón-Tanarro, A., Codella, C., Di Francesco, J., Fontani, F., Hogerheijde, M., Johansen, A., Johnstone, D., Maddison, S., Panić, O., Pérez, L. M., Podio, L., Punanova, A., Rawlings, J. M. C., Semenov, D., Tazzari, M., Tobin, J. J., van der Wiel, M. H. D., van Langevelde, H. J., Vlemmings, W., Walsh, C., Wilner, D., "VLA cm-wave survey of young stellar objects in the Oph A cluster: constraining extreme UV- and X-ray-driven disk photo-evaporation", *A&A*, 631, 58 (2019) [[ADS](#)]
- 19-13 Cruz-Sáenz de Miera, F., Kóspál, Á., Abraham, P., **Liu, H. B.**, Takami, M., "Resolved ALMA continuum image of the circumbinary ring and circumstellar disks in the L1551 IRS 5 system", *ApJL*, 882, 4 (2019) [[ADS](#)]
- 19-12 Yen, H.-W., Gu, P.-G., Hirano, N., Koch, P. M., Lee, C.-F., **Liu, H. B.**, Takakuwa, S., "HL Tau Disk in HCO⁺ (32) and (10) with ALMA: Gas Density, Temperature, Gap, and One-arm Spiral", *ApJ*, 880, 69 (2019) [[ADS](#)]
- 19-11 Minh, Y.-C., **Liu, H. B.**, "Chemical diagnostics of the massive star cluster – forming cloud 3.92+0.11. III. 13CN and DCN", *JKAS*, 52, 83 (2019) [[ADS](#)]
- 19-10 Fogarty, K., Postman, M., Li, Y., Dannerbauer, H., **Liu, H. B.**, Donahue, M., Ziegler, B., Koekemoer, A., Frye, B., "The dust and molecular gas in the brightest cluster galaxy in MACS 1931.8-2635", *ApJ*, 879, 103 (2019) [[ADS](#)]
- 19-9 Chen, H.-R. V., Zhang, Q., Wright, M. C. H., Busquet, G., Lin, Y., **Liu, H. B.**, Nakamura, F., Sanhueza, P., Palau, A., Ohashi, S., Tatematsu, K., Liao, L.-W., Olguin, F. A., "Filamentary accretion flows in the infrared dark cloud G14.225–0.506 revealed by ALMA", *ApJ*, 875, 24 (2019) [[ADS](#)]
- 19-8 Yen, H.-W., Takakuwa, S., Gu, P.-G., Hirano, N., Lee, C.-F., **Liu, H. B.**, Liu, S.-Y., Wu, C.-J., "Signs of outflow feedback from a nearby young stellar object on the protostellar envelope around HL Tau", *A&A* in 623, 96 (2019) [[ADS](#)]
- 19-7 Akiyama, E., Vorobyov, E. I., **Liu, H. B.**, Dong, R., de Leon, J., Liu, S.-Y., Tamura, M., "A tail structure associated with protoplanetary disk around SU Aurigae", *AJ*, 157, 165 (2019) [[ADS](#)]
- 19-6 Cazzoletti, P., Manara, C. F., **Liu, H. B.**, van Dishoeck, E. F., Facchini, S., Alcalá, J. M., Ansdell, M., Test, L., Williams, J. P., Carrasco-González, C., Dong, R., Forbrich, J., Fukagawa, M., Galván-Madrid, M., Hirano, N., Hogerheijde, M., Hasegawa, Y., Muto, T., Pinilla, P., Takami, M., Tamura, M., Tazzari, M., Wisniewski, J. P., "ALMA survey of Class II protoplanetary disks in Corona Australis: a young region with low disk masses", *A&A*, 626, 11 (2019) [[ADS](#)]
- 19-5 Lu, X., Zhang, Q., Kauffmann, J., Pillai, T., Ginsburg, A., Elisabeth, A. C. M., Kruijssen, J. M. D., Longmore, S., Battersby, C., **Liu, H. B.**, Gu, Q., "Star formation rates of massive molecular clouds in the Central Molecular Zone", *ApJ*, 872, 171 (2019) [[ADS](#)]
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White Book Contribution

- ngVLA memo ([Nakatani & Liu 2021](#))
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- Green Land Telescope ([Hirashita et al. 2016](#))
- Next Generation Very Large Array Memo No. 6, Science Working Group 1 ([Isella et al. 2015](#))
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Workshop/Conference Organizing Committee

- Science with the Submillimeter Array: Present and Future, 2019 November (SOC/LOC)
- Improving Image Fidelity on Astronomical Data: Radio Interferometer and Single-Dish Data Combination, 2019 August (SOC, [url](#))
- Baobab Dumpling Workshop for Disks and Exoplanets, 2018 December (SOC chair/LOC chair)
- ESO Polarization Workshop QUESO, 2017 October (LOC co-chair, SOC co-chair, [Messenger-no171](#), [pg 46-47](#))
- ESO Workshop on ALMA-APEX Synergies of Band 5, 2017 February (SOC [Messenger-no141](#), [pg 41-42](#))
- East Asian Young Astronomer's Meeting, 2015 February (LOC)
- ALMA Proposal Writing Camp, 2013 November (LOC)
- ALMA Japan-Taiwan-Korea Workshop, 2013 September (LOC Chair)
- ALMA Imaging Workshop, 2013 August (LOC)