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主要研究内容：天体化学建模：发展最先进的化学模型来研究冷核和原行星盘的化学演化。研究分子云、原行星盘和行星状星云的化学演化。

射电天文学（毫米和亚毫米观测）：利用单天线和干涉阵数据研究分子云、前星核区域、原恒星和原行星盘的化学性质。

主持参与科研项目：

在研项目

自治区天池英才引进计划-青年博士，恒星形成区中尘埃动力学演化对化学演化的影响研究，2024 年 1 月至 2027 年 12 月, 65.0 万元, 在研, 主持。

获奖情况：无

代表性科研成果：

1.XiaoYing Guo;, **Iqbal, W*** .; Qiang Chang; Xiaohu Li, *Understanding the impact of H2 diffusion energy on the formation efficiency of H2 on the interstellar dust grain surface*, Research in Astronomy and Astrophysics, in press, 2024, [URL].

2.**Iqbal, W*** **;** Xiaohu Li; Juan Tuo; Ryszard Szczerba; et al. *Exploring Sulfur Chemistry in TMC-1 with NSRT*, Chinese Physics Letters, 41,029501, 2024, [URL].

*3.*Suman, K.M.; **Iqbal, W*** **.**; Prasanta, G.; Bratati, B.; Wakelam, V.; Das, A., *Investigating the hot molecular core, G10.47+0.03, a pit of nitrogen-bearing complex organic molecules,* A&A, 669, A71, 2023 [URL].

4.Gavino, S.; Dutrey, A.; Wakelam, V.; Guilloteau, S.; Kobus, J.; Wolf, S.; **Iqbal, W.**; Di Folco, E.; Chapillon, E.; Piétu, V., *Impact of size-dependent grain temperature on gas-grain chemistry in protoplanetary disks: The case of low-mass star disks,* A&A, Volume 654, id. A65, 39 pp, October 2021, [URL].

5. Wakelam, V.; **Iqbal, W.**; Melisse, J. -P.; Gratier, P.; Ruaud, M.; Bonnell, I., *Influence of galactic arm scale dynamics on the molecular composition of the cold and dense ISM III. Elemental depletion and shortcomings of the current physico-chemical models*, MNRAS, Volume 497, Issue 2, pp.2309-2319, September 2020, [URL].

6. Wakelam, V.; Chapillon, E.; Dutrey, A.; Guilloteau, S.; **Iqbal, W.**; Coutens, A.; Majumdar, L., *Protoplanetary discs: sensitivity of the chemical composition to various model parameters*, MNRAS, Volume 484, Issue 2, p.1563-1573, April 2019, [URL].

7. **Iqbal, W.**; Wakelam, V.; Gratier, P., *Statistical study of uncertainties in the diffusion rate of species on interstellar ice and its impact on chemical model predictions*, A&A, Volume 620, id. A109, 13 pp, December 2018, [URL].

8. **Iqbal, W.**; Wakelam, V., *Nautilus multi-grain model: Importance of cosmic-ray-induced desorption in determining the chemical abundances in the ISM*, A&A, Volume 615, id. A20, 16 pp, July 2018, [URL].

9. **Iqbal, W.**; Acharyya, Kinsuk; Herbst, Eric, *H_2 Formation in Diffuse Clouds: A New Kinetic Monte Carlo Study*, ApJ, Volume 784, Issue 2, article id. 139, 13 pp, April 2014, [URL].

10. **Iqbal, W.**; Acharyya, Kinsuk; Herbst, Eric, *Kinetic Monte Carlo Studies of H_2 Formation on Grain Surfaces over a Wide Temperature Range,* ApJ, Volume 751, Issue 1, article id. 58, 13 pp, May 2012, [URL]