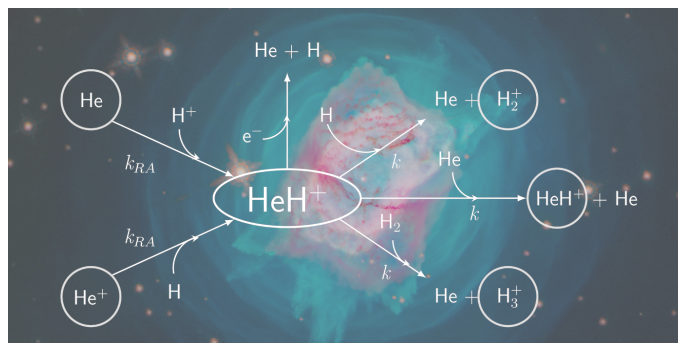


## Cations and Anions in Interstellar Media

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### Abstract

After the Big Bang, the Universe had to cool sufficiently ( $T < 3000\text{K}$ ) for chemical processes to take place. It appears that helium was the first atom to be formed and  $\text{HeH}^+$  was the first diatomic species to be formed. With that several other species including  $\text{H}_2$  followed. The first triatomic species formed was perhaps  $\text{H}_3^+$ . There could have been  $\text{HeH}_2^+$  too. While He and H were formed in the 1:10 ratio, lithium was 10 orders of magnitude less in formation. All higher elements in the periodic table up to Fe had to wait for star (including the Sun) formation. The abundance of neutral/cationic/anionic molecular species in the interstellar medium gives us clues about the chemical reactions that followed. The speaker will highlight some of his own research on cationic and anionic molecular species present in the interstellar medium and energy transfer in some of them.



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