Interstellar dust is an essential constituent in the evolution of solar systems, stars, and planets - like our Earth - but its origin and processes are still insufficiently understood. Key components of such interstellar dust are μm-sized silicates, which are mainly silicon-containing compounds, with oxygen, among others.\(^1\) Furthermore, silicon and oxygen are the two most abundant elements in our Earth’s crust. However, only molecular SiO has been identified as a possible precursor in space and circumstellar disks yet.\(^2\) Experimental data and quantum chemical calculations on larger Si_{n}O_{m}^{+} cations are expected to provide information on further intermediate steps of the dust grain formation. Therefore, we focus on these and present the first results on the Si_{3}O_{2}^{+} molecular ion. The optical spectra are among the first spectroscopic information for Si_{n}O_{m}^{+} cations larger than SiO^{+} and Si_{2}^{+}.\(^2\)–\(^5\) The electronic photodissociation spectra are obtained by photodissociation spectroscopy of mass-selected ions in a tandem mass spectrometer coupled to a laser vaporization source.\(^6\) The data generated by action spectroscopy are compared and interpreted with TD-DFT calculations.

**Literature:**