

OPTICAL SPECTRUM OF Si_2^+

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Silicon is very important in the modern electrical industry, for example for the production of solar cells. To improve their efficiency the newest generation of solar cells consists of nanostructures like quantum dots. Therefore studies about optical properties of silicon nanoclusters are of particular interest [1]. These characteristics for the smallest cluster Si_2 , which is necessary for the formation of larger clusters, are not well established yet [1].

In this talk, experimental data and quantum chemical calculations on the absorption and dissociation properties of Si_2^+ are presented. The spectrum of Si_2^+ was obtained by photodissociation of mass-selected Si_2^+ cations in a tandem mass spectrometer, which are created in a laser vaporization source [2]. The experimental results are compared and discussed with theoretical results of TD-DFT calculations. Significantly, our optical spectrum provides the first spectroscopic information for this simple diatomic cation.

Literature:

- [1] L.-Z. Zhao et al. J. Phys. Chem. A 2017, 121, 34, 6388–6397
- [2] M. Förstel et al., Rev. Sci. Instrum., 2017, 88, 123110.