Abstract:
Photodetachment-photoelectron spectra of HS2- and DS2- are presented. The obtained electron affinities (EA (HS2) = 1.916 ± 0.015 eV and EA (DS2) = 1.918 ± 0.015 eV) are in good agreement with earlier results. Photodetachment into the neutral ground state of the radicals HS2 and DS2 leads to excitation of the S-S stretching mode, whereas photodetachment into the first excited state causes a S-S-H bending and a weak S-H stretching motion. Addnl., weak peaks of S2 were obsd. in the spectra of HS2 and DS2, leading to the conclusion that photodetachment with 2.77 eV (448 nm) causes disso. of HS2- and DS2- into S2- and H/D. Taking 2.77 eV as an upper limit for D0(S2--H) a lower limit for ΔfH0(HS2(g)) of 100.8 kJ mol-1 is obtained which is an improvement on the literature value of 107.145 ± 10.46 kJ mol-1. [on SciFinder(R)]

Stichworte:
Molecular structure (optimized photodetachment-photoelectron spectroscopy of disulfanide) Electron affinity Electron photodetachment Excited electronic state Ground state Molecular vibration Photoelectron spectra Vibrational frequency (photodetachment-photoelectron spectroscopy of disulfanide) Radicals Role: PRP (Properties) (photodetachment-photoelectron spectroscopy of disulfanide) photodetachment photoelectron spectroscopy disulfanide
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